PURCHASING

JANUARY, 1954

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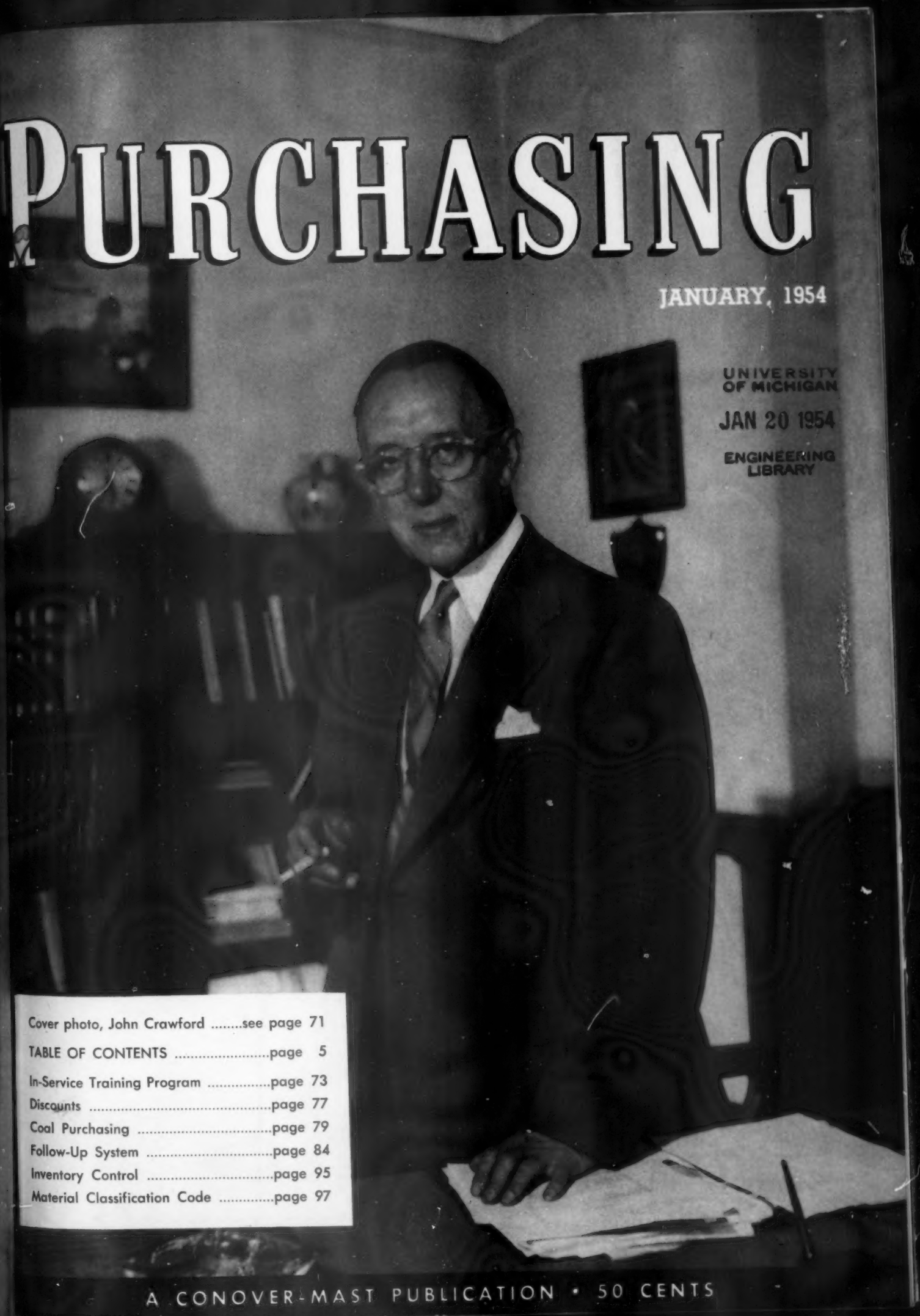

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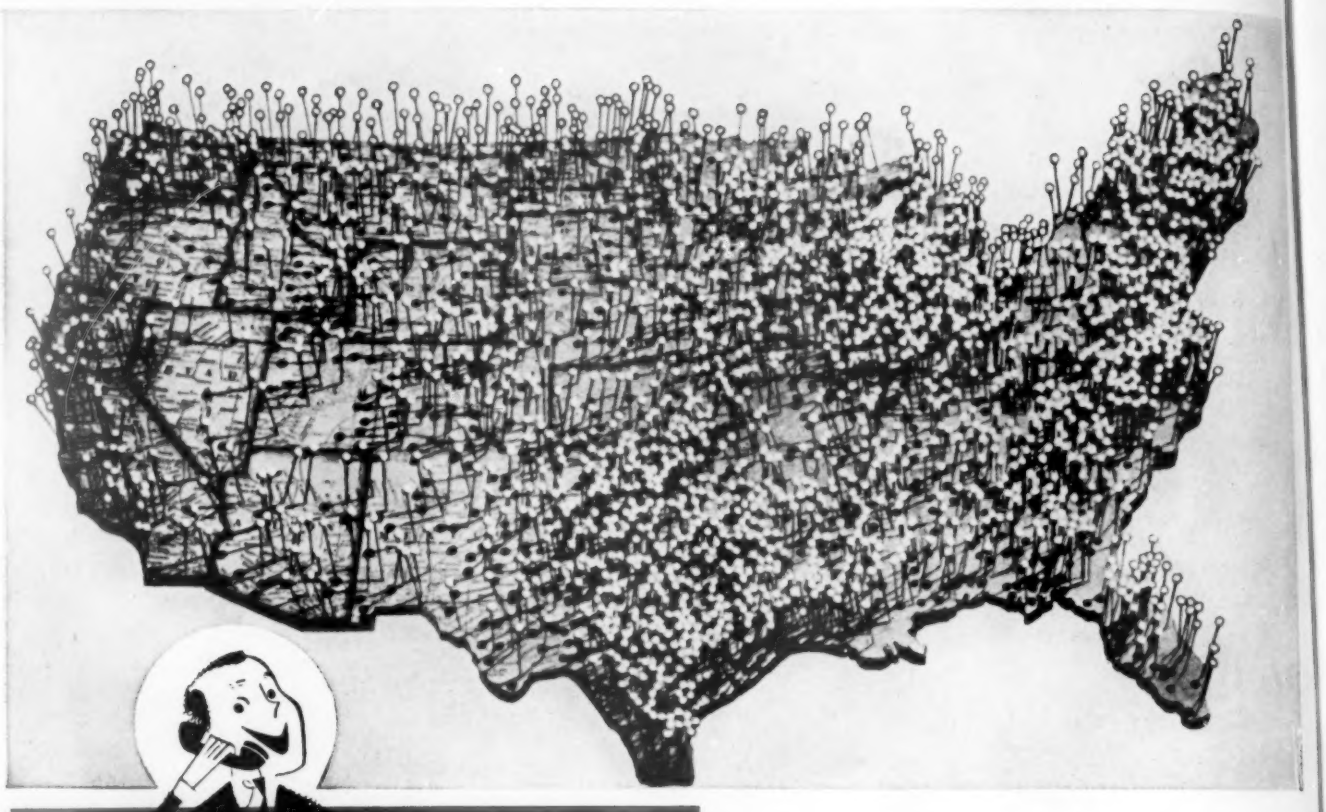

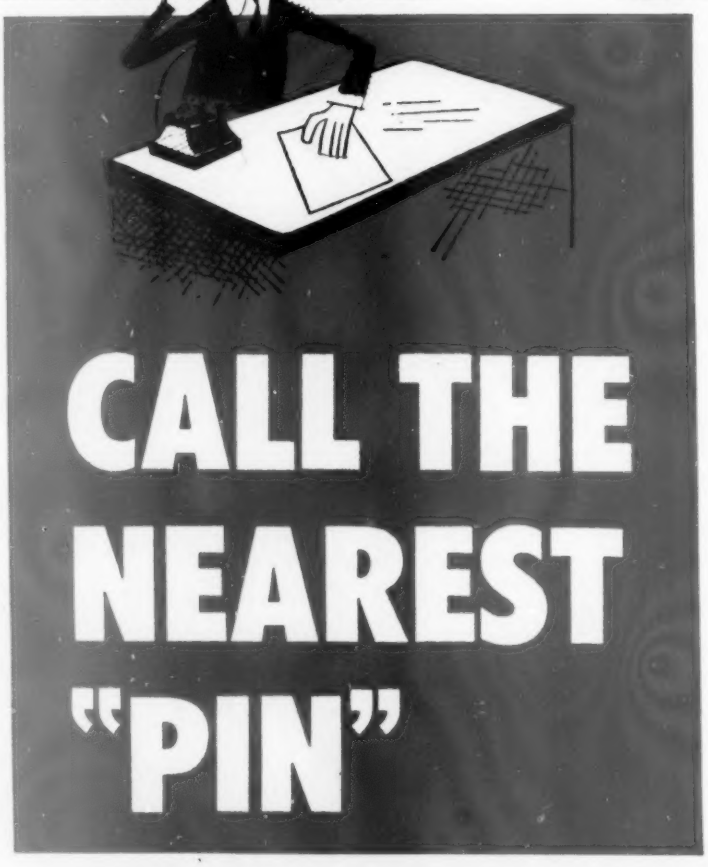

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Each pin on the map represents a Texaco Distributing Plant. To serve you, wherever you are, there are more than 2,000 of them throughout the 48 States.

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Made-for-the-job Texaco Lubricants and famous Texaco Lubrication Engineering Service bring these benefits daily to plants in every branch of industry.

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PURCHASING

The National Magazine of Industrial Purchasing

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EDITORIAL AND EXECUTIVE OFFICES
205 East 42nd Street, New York 17, N. Y.

BRANCH OFFICES
737 North Michigan Avenue ..... *Chicago 11, Ill.*
1900 Euclid Avenue ..... *Cleveland 15, Ohio*
5478 Wilshire Blvd ..... *Los Angeles 36, Cal.*
National Press Building ..... *Washington, D. C.*

Published monthly by Peeaye, Inc.
Subsidiary of
CONOVER-MAST PUBLICATIONS, INC.
Printed at Orange, Conn.

CONOVER-MAST PUBLICATIONS
PURCHASING
MILL & FACTORY
AVIATION AGE
CONSTRUCTION EQUIPMENT
LIQUOR STORE
BAR—RESTAURANT
INSTITUTIONAL FEEDING AND HOUSING
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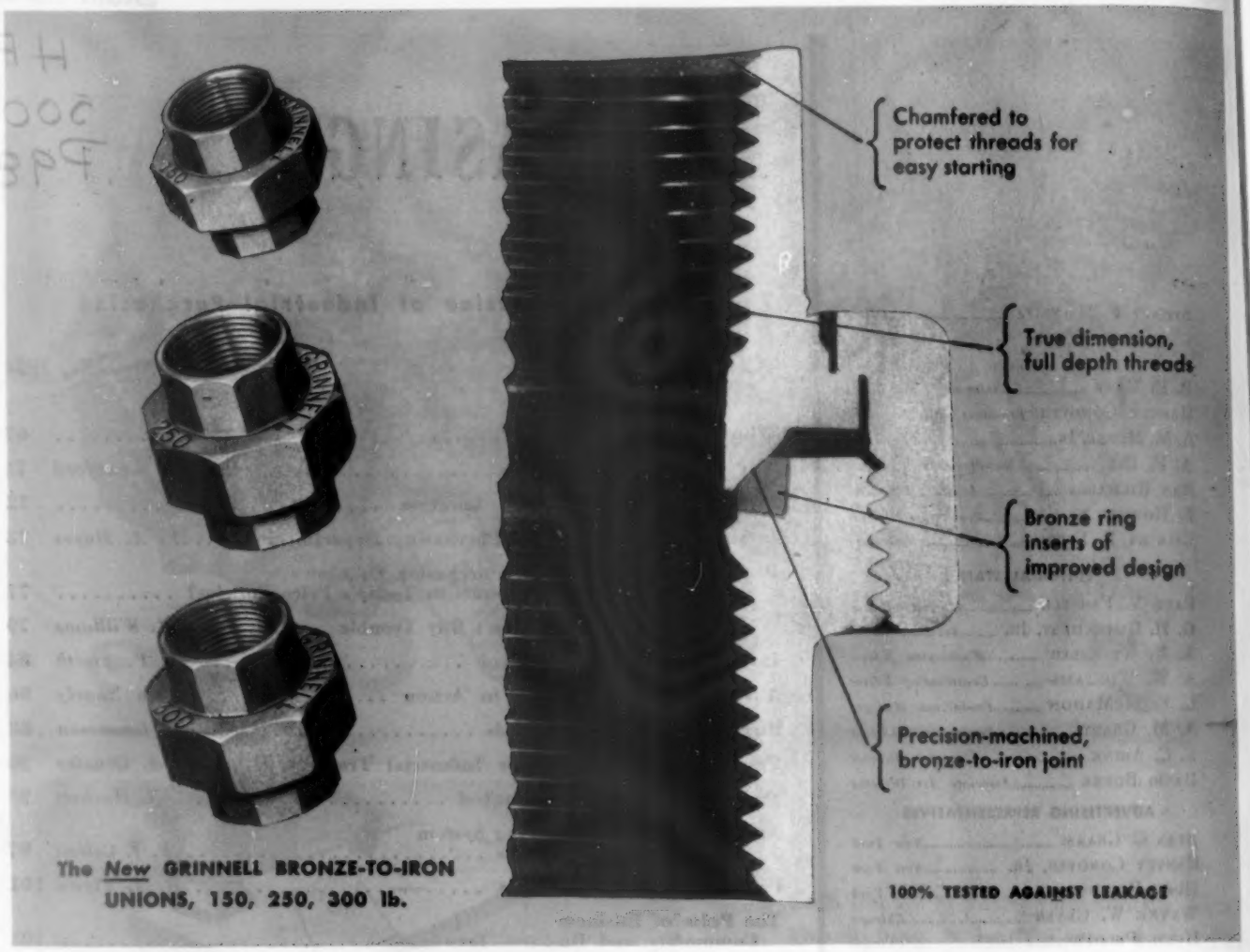
PURCHASING is an independent journal, not the official organ of any association. Established 1915 as "The Purchasing Agent". Consolidated with "The Executive Purchaser".

Contents are indexed monthly and annually by the Engineering Index Service.

Subscription rates: United States, U. S. Possessions, and Canada: $4 per year; elsewhere, $10 per year. Single copies, 50¢.

Printed in U.S.A., by The Wilson H. Lee Co., Orange, Connecticut


Chamfered to protect threads for easy starting
True dimension, full depth threads
Bronze ring inserts of improved design
Precision-machined, bronze-to-iron joint
The New GRINNELL BRONZE-TO-IRON UNIONS, 150, 250, 300 lb.
100% TESTED AGAINST LEAKAGE

Here's the inside story behind the *new* GRINNELL UNIONS

Cut-away view of the *new* Grinnell bronze-to-iron union reproduced here is *exactly as photographed.* It has not been retouched in *any* way.

The "inside story", as told by the camera, points up the engineering achievement that makes the *new* Grinnell bronze-to-iron union a standard of comparison for the industry.

What the camera cannot show you is the Quality Control which goes into the *new* Grinnell Unions. For instance: each union is tested against leakage by applying air pressure under liquid.

High quality materials, completely new, modern manufacturing machinery, and highly skilled personnel are employed in the manufacture of the *new* Grinnell unions. Branch warehouses and distributors, from coast to coast, make local stocks as convenient as your telephone.

Features of the *new* Grinnell bronze-to-iron unions:

- Precision-machined, bronze-to-iron joint for a positive, leak-proof connection
- 100% tested with air under liquid
- Bronze ring inserts of improved design — bonded to iron by newly developed equipment
- True dimension, full depth threads
- Chamfered to protect threads for easy starting
- Designed for rugged service

GRINNELL

WHENEVER PIPING IS INVOLVED

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

Manufacturer of: pipe fittings • welding fittings • forged steel flanges • steel nipples • engineered pipe hangers and supports Thermolier unit heaters • Grinnell-Saunders diaphragm valves • prefabricated piping • Grinnell automatic fire protection system

PURCHASING PREVIEWS

A WASHINGTON REPORT FOR PURCHASING AGENTS

January 1, 1954.

STRONGER DISTRIBUTIVE ORGANIZATIONS TO AID SELLING

Industry is coming to closer grips with the adjustment to a postwar economy. No substantial drop in the level of business is anticipated, but considerable change is expected.

One element of change is the shift from a seller's to a buyer's market. This has not been a sudden change, but it has just begun to be an important factor in the sale of many hard goods.

Business leaders maintain that salesmanship at the various levels of distribution can offset any decline that will result from reduction in military expenditures or from the complete elimination of scarcity buying touched off by war scares.

Concentration on the necessity of selling has led major producers in industry to review their distributive organization. Many manufacturers, who expanded their sales organization during the seller's market and developed a mass marketing organization, are scaling down their distributive organization and will go after quality distributors, rather than mass marketers.

This reduction in the number of distributive outlets is expected to come through business attrition. The stronger and more aggressive distributors will remain in business. It is expected that the weeding out process will be accomplished without a great deal of business dislocation.

* * *

INVENTORY ACCUMULATIONS MODERATE AT MANUFACTURING LEVEL

Close watch is being kept on the accumulation of inventory. In unprocessed and semi-processed materials, accumulation has been moderate; buildup in inventory levels has occurred in finished goods, which tend to accumulate at the point of sale.

Manufacturers have developed the practice of working close to inventory, primarily as an outgrowth of the period of wartime scarcity of materials, when it was both illegal and impossible to accumulate excessive inventory.

Trend in manufacturing has been to adjust the rate of production rather quickly to the volume of sales, and thus avoid any large accumulation of inventory of materials, parts of finished goods.

Few wholesalers can afford to carry large inventories, but among the much more numerous retailers, an above-normal inventory level can mean a very sizeable number of units.

* * *

INDUSTRIAL EXPANSION CONTINUES

Industrial expansion continues at a substantial rate, even though the Government is no longer sparking expansion as a matter of defense policy.

The initial expansion of power output and production capacity for primary metals and chemicals has created new markets and demands for processors and distributors.

Outlook for 1954 is for a lower level of industrial expansion compared with last year, but no sudden or sharp drop.

* * *

DEFENSE INDUSTRY STILL A MAJOR CONSUMER

Set-aside of aluminum for military requirements during the first quarter of this year will be roughly 24% of the total available supply of domestic and imported primary aluminum. Fourth quarter set-aside represented 29% of the available supply.

The currently lower take reflects the lesser rate of military production. At the same time, a use rate of 24% of total supply for military use indicates the impressive volume of current military production.

How good a buy is a bargain?

Valves are no exception in "bargains" offered every day. Maybe you could afford to buy such valves—if you didn't look beyond the price tag . . . didn't care about quality . . . didn't figure their real cost.

But you're aware of current maintenance labor rates. You know the labor part of piping installations has grown bigger and bigger . . . that valve repairs aren't the small jobs they used to be. So you want greater assurance of dependability—not fictitious savings in price.

Buying with an eye to real value marks today's thrifty buyer. That's why he prefers traditionally dependable Crane quality. He knows it means longer life, greater freedom from trouble . . . and that Crane puts such quality into piping equipment for every need.

Crane Co., *General Offices:* 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas.

CRANE

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

GOVERNMENT SERVICES UNDER STUDY

Under past Administrations, there was an unending cycle of new and added services which the Government supplied, as a solution to real or fancied emergency. When the emergency ended, the services were continued without any question that the function could either be ended or better performed by private enterprise.

Considerable effort is now being put forward by the new Administration to review the services performed by Government agencies to determine whether the work performed is important, and if it can be performed by a non-government group.

In many instances, the services performed by Government on behalf of an industrial group could be performed by the trade association of the group.

Also, where the service performed benefits a specific group, there is a substantial question as to whether that group should not pay the actual cost of the work performed. One obvious benefit of this approach is that it would induce efficiency and thrift.

Department of Commerce officials indicate that they hope to initiate charges for Government services sufficient to cover the cost of providing such services.

There is now a very nominal charge to airlines for the use of the Federal airways, and under study is a system of charges that would cover the costs of providing the airway service.

Also the Post Office Department is pressing for further adjustment in postal rates to put the postal service on, or near a paying basis.

However, at each point where the Government seeks to assess an adequate charge for the services rendered, those groups benefiting from the free services or from low rates bring strong political forces to bear in defense of their title to the services. These political forces are usually very strong, since considerable political pressure was necessary initially to obtain the special Government advantages.

* * *

GOVERNMENT SPENDING AND TAX CYCLE

Biggest controversy between the two political parties, as well as within the councils of the Administration itself, continues to be over the question of how to balance the budget.

There is general agreement that such a balance is necessary, but the pressures of defense spending are unremitting and the level of taxation is now so high that the strain on the taxpayer is at the breaking point.

Two major concessions toward lower taxes became effective the first of this month —end of the Excess Profits Tax and the reduction in income taxes. Selective cut in some excise taxes is due the end of April, but there is strong support within the Government to head off the excise cuts, at least until the Government budget outlook is clearer.

Basically, however, while the Administration has been able to bring about some economies in the civil side of Government, there are many fixed charges against Government revenues that cannot be adjusted—interest charges, benefits to veterans, etc. Furthermore, the amounts that can be saved by trimming civil Government expenditures are limited.

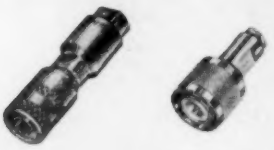
This leaves military expenditures as the biggest target of those who would bring down appreciably the levels of Government spending.

Here, however, they run head-on into the need for a strong national defense—also the need for caution in any quick shifts that would cut back military contracts without giving industry sufficient time to adjust to the change.

Some compromise is possible and necessary, with the likelihood that military personnel will be cut, but that production of military hardware—especially aircraft, guided missiles and electronics—will continue high.

check the SPECIFICATIONS for this name - AMPHENOL

AN CONNECTORS



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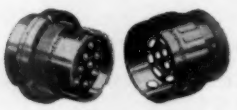

AUDIO CONNECTORS

MICROPHONE CONNECTORS

it's your guarantee of quality . . .

AMPHENOL is the Trade Mark of the AMERICAN PHENOLIC CORPORATION. The presence of this name on specifications for AN connectors, RF connectors, coaxial cable or any of the components made by AMPHENOL signifies concern by your company that only the best components are purchased. By specifying AMPHENOL, your company, like so many other companies in the electronics industry, is putting the *emphasis on quality*.

At AMPHENOL, the design of a new component or the modification of an existing component has as its basis a concern with *quality*. How can it be designed to perform best? What materials will provide this performance? These are very real questions asked in the Designing Department at AMPHENOL—questions that must be satisfactorily answered before a design can be released. Product engineers continue with this concern. They may spot improvements in a component which will insure higher quality—and these will be incorporated. Finally, Production and Inspection keep a quality-wise eye on the component during the manufacturing process.

The results of this continuing emphasis on quality at AMPHENOL are the famous components requested in the specifications that cross your desk. Remember the name AMPHENOL stands for *quality*.

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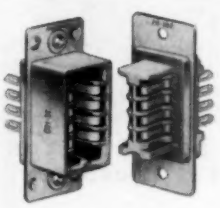

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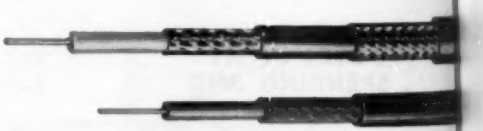
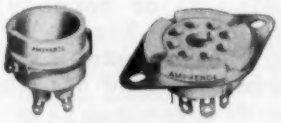


COAXIAL CABLES



RADIO TUBE SOCKETS

MINIATURE CONNECTORS

just off the press . . .

The new AMPHENOL *Catalog B-3 contains general information about the entire* AMPHENOL *line of components as well as listings of special catalogs and literature that may be requested.*

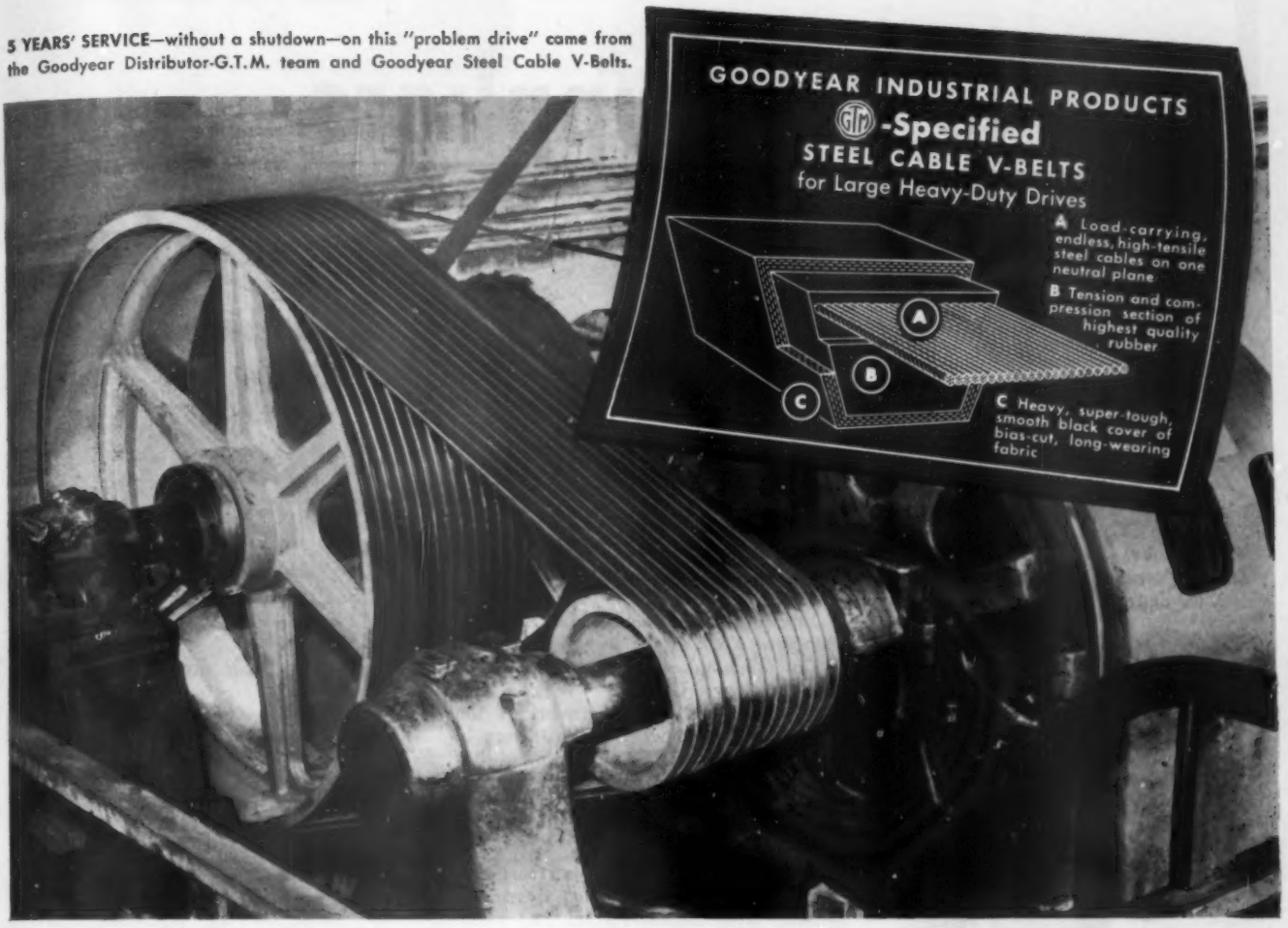
. . . write for yours today!

AMERICAN PHENOLIC CORPORATION

chicago 50, *illinois*

remember - AMPHENOL means QUALITY

5 YEARS' SERVICE—without a shutdown—on this "problem drive" came from the Goodyear Distributor-G.T.M. team and Goodyear Steel Cable V-Belts.


GOODYEAR INDUSTRIAL PRODUCTS
GTM -Specified
STEEL CABLE V-BELTS
for Large Heavy-Duty Drives
A Load-carrying, endless, high-tensile steel cables on one neutral plane
B Tension and compression section of highest quality rubber
C Heavy, super-tough, smooth black cover of bias-cut, long-wearing fabric

Best V-Belts in the Long Run...

COME FROM YOUR GOODYEAR DISTRIBUTOR

GETTING the maximum service out of V-belts depends on two things: a quality-built product and its proper recommendation. You can get both from your Goodyear Distributor.

The product could be any one of the complete line of V-belts by Goodyear. There are nine basic constructions—all designed to R.M.A. Standard dimensions—all built to the world's highest standards of quality and workmanship. Each of these belts is precision-made to do a specific job best—each is an expert combination of rubber, reinforcement and fabric to give you maximum return for your dollar.

Choosing the right belt for your drive comes natural to your Goodyear Distributor. He is selected because of his experience in the industrial supply field. He is especially trained in drive design and maintenance by Goodyear. He knows belts and how to use them. And should he ever be stopped by a real problem drive, he can always call on the G.T.M.—Goodyear Technical Man—the man who knows V-belts best.

There are many advantages to dealing with your Goodyear Distributor. Tailored service, rapid delivery, simplified billing and reduced inventory are a few. But most important, only he has the right product, the right knowledge and the G.T.M. Look for him in the Yellow Pages of your Telephone Directory or write Goodyear, Industrial Products Division, Akron 16, Ohio.

GOODYEAR

THE GREATEST NAME IN RUBBER

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

NEWS OF YOUR Suppliers

F. J. Stokes Machine Co. Philadelphia, has appointed Samuel H. Greenwood as district manager of a newly

Samuel H. Greenwood

enlarged territory, with headquarters in Philadelphia. He will have charge of sales and service for Stokes products in eastern Pennsylvania, upstate New York, lower New Jersey, Delaware and the southeastern United States extending as far as Florida. Assisting Mr. Greenwood in the new district office will be Walter E. Rayher and Joe D. Robertson.

Carleton Ellis, Jr., has been appointed director of sales for all Plaskon Products, according to an announcement from the **Barrett Division, Allied Chemical & Dye Corporation, Toledo, Ohio.** Allied Chemical purchased the Plaskon Division of Libbey-Owens-Ford Glass Co., last October 7th.

In addition, Sam Gurley, formerly Barrett resin sales manager, is now general sales manager. H. V. DeVore is manager of moulding compound sales, H. A. Raymond, Jr., is manager of industrial sales, and C. D. Delaney is manager of coating resin sales.

Porter-Cable Machine Co., Syracuse, N. Y., has appointed five men to new sales positions. Eugene V. Allen becomes administrative assistant to the sales manager. Walter C. Coleman, formerly Porter-Cable sales representative for Rhode Island and Western Massachusetts, succeeds Mr. Allen in the New York State territory. Robert E. Comstock takes over Mr. Coleman's old territory. Carl W. Wilke joins Porter-Cable as field engineer for the east central zone with headquarters in Cleveland. Patrick H. Delmonico has been named field engineer in Central and Western New York with headquarters in Syracuse.

Hanson Whitney Company, Hartford, Conn., has appointed Ralph Edwards as general sales manager, machine tools, and Edward P. Cody as general sales manager, small tools and gages.

Edward P. Cody

Ralph Edwards

Mr. Edwards joins the Hanson-Whitney organization after 20 years of diversified experience in the machine tool industry. He had been with the Keller Tool Co., Grand Haven, Mich., and the Machine Tools Division of Pratt & Whitney.

Mr. Cody has been a member of the Hanson-Whitney Company since 1924. He was named sales manager in 1948. (In the Sept. issue of PURCHASING, the captions under Mr. Edwards' and Mr. Cody's pictures were transposed.)

Richard L. Allen has been appointed general sales manager of the **Bridgeport Brass Company, Bridgeport, Conn.**, replacing Chester M. Adams, who died recently. Mr. Allen has been serving as acting general sales manager since the late Mr. Adams was taken ill a few months ago.

Bakelite Co., a division of Union Carbide and Carbon Co., New York City, has announced the appointment

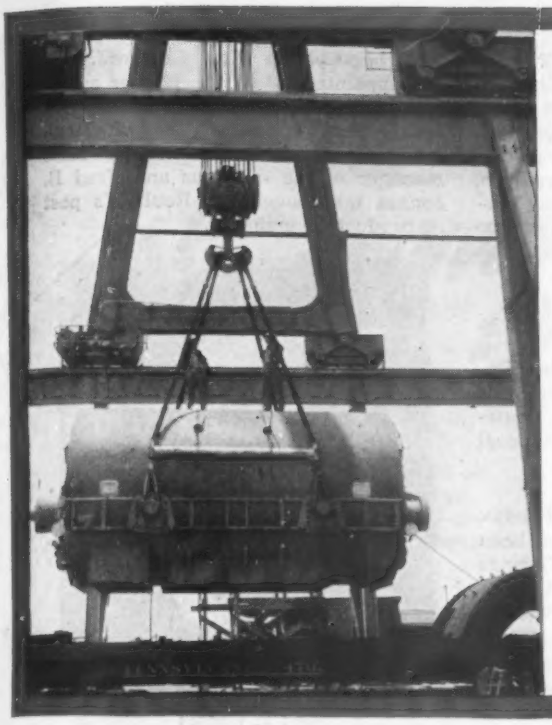
H. K. Phinney

of H. K. Phinney as manager, Laminating Materials Division. Mr. Phinney, who was previously assistant manager, succeeds Harry Carlson, who was recently appointed to the Market Development Department.

Marbon Corporation, Gary, Ind., has announced that Robert Shattuck is now president of the organization. Mr. Shattuck previously was vice president and general manager of this Borg-Warner subsidiary. He succeeded George P. F. Smith, who retired from the post to devote his full time to his duties as president of the Norge Division of Borg-Warner.

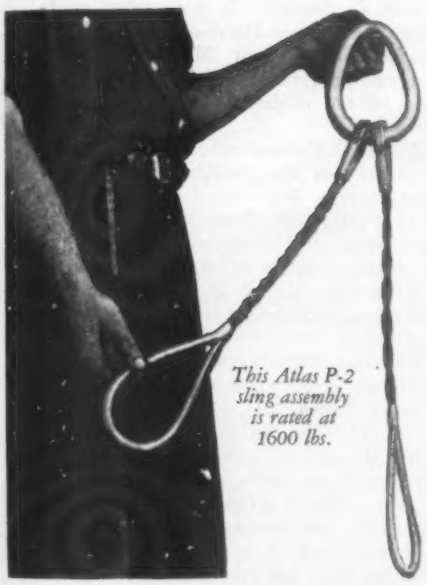
H. Hunter Gehlbach, assistant secretary and assistant general counsel of Borg-Warner, has been elected secretary of Marbon. E. R. Meyer, previously chief accountant, now becomes Marbon's treasurer and assistant secretary. D. Morris Pratt has been re-elected vice president and sales manager.

H. H. Buggie, Inc., Toledo, Ohio, has named C. H. Sharp as general manager. Previously Mr. Sharp had been production manager and has been with the firm since 1934.



Another job well done with Macwhyte Slings!

408,600-LB. GENERATOR SAFELY HANDLED WITH MACWHYTE ATLAS BRAIDED SLINGS



This Atlas P-2 sling assembly is rated at 1600 lbs.

Macwhyte slings are available for any load regardless of size. Our experience on thousands of applications is yours for the asking. Just write to Macwhyte Company, Sling Dept., Kenosha, Wis.

Macwhyte 8-Part Atlas Type 1 Round-braided Wire Rope Sling.

Safe installation of a $2,000,000 generator at the Valley Steam Plant of Los Angeles' Department of Water and Power required expert handling and finest rigging.

That's why Macwhyte Atlas Round-braided Wire Rope Slings were chosen to unload and install the largest and heaviest single freight shipment ever handled by the Southern Pacific Railroad. Lift was made with a 180-ton Moffett Crane using Macwhyte's Monarch Whyte Strand Wire Rope.

Macwhyte's *balanced* braiding gives Atlas Slings greater flexibility, longer life, resists spinning and kinking. Macwhyte slings and wire rope offer better service on any lifting job, large or small. Recommendations will be promptly made on request.

MACWHYTE SLINGS

Complete line of slings to fit your needs!

Three types of body are available: Atlas Round-Braided, Drew Flat-Braided, Monarch Single-Part. All are made to order in any size for any job. Suggestions for slings to meet your needs are promptly available.

READY now—new Circular Number 5308 showing strengths and safe-loads at various angles plus many sling designs. Ask for 5308.

See the hundreds of slings in Macwhyte Sling Catalog S-8

MACWHYTE COMPANY

2918 Fourteenth Ave., Kenosha, Wisconsin

Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cable, Safe-Lock Assemblies, Monel Metal and Stainless Steel Wire Rope.

Mill depots: New York • Pittsburgh • Chicago St. Paul • Fort Worth • Portland • Seattle • San Francisco • Los Angeles • Distributors throughout U.S.A.

10478

Fred E. Greger has been named sales manager of **Standard Steel Works Division, Baldwin-Lima-Hamilton Corporation, Philadelphia.** Mr. Greger has

Fred E. Greger

been transferred to the BLH Burnham, Pa., location from Chicago where he has been western sales manager for the Hamilton Division of the company since 1950.

Columbus McKinnon Chain Corp. and its Chisholm-Moore Hoist Division, Tonawanda, N. Y., have announced the promotion of seven staff members and the appointment of another. Promoted to manager of field sales, with headquarters in Tonawanda, is F. T. Benjamin, formerly Chicago district manager. Appointed to fill Mr. Benjamin's post is Karl L. Miller, formerly assistant general manager of sales for the Buffalo Bolt Co. Promoted to the positions of product managers with headquarters in Tonawanda are: E. J. Byrne, hoists; G. F. Grace, industrial chain and R. E. Gerspacher, automotive chain. To the positions of customer service managers; R. L. Pfanner, hoists; O. H. Hager, industrial chain and F. G. Schweitzer, automotive chain.

Raybestos-Manhattan, Inc., Passaic, N. J., has announced the appointment of S. V. V. Hoffman as district manager of the firm's west coast sales district. Mr. Hoffman will supervise the sales of industrial rubber products, mechanical packings and asbestos textiles at Los Angeles, San Francisco and Seattle. He will headquarter at Los Angeles.

Howard W. Dellard has been named to head the Chicago chemical district sales office of the **Atlas Powder Co., Wilmington, Del.** Mr. Dellard succeeds Harry B. Paul, who has been transferred to direct Wilmington's chemical district sales.

Standard Products, Inc., 3041 Fairfax Rd., Kansas City, Kansas, has been named a distributor of Parker O-rings according to an announcement from the Parker Appliance Co., Cleveland

Industrial Trucks, Inc., of Fairfield and Rocky Hill, Conn., has been appointed to handle sales and service of Yale Industrial Trucks for the Yale Materials Handling Division, **Yale & Towne Manufacturing Co., Philadelphia.** The New England firm's territory includes Connecticut, Vermont, Western Massachusetts and Southwestern New Hampshire.

National Welding Equipment Co., San Francisco, Calif., has named Henry L. Pohndorf as sales manager. He has been the company's chief engineer since first joining the staff.

W. J. Fleming, formerly associated with the sale of Plainfield built concrete machines has been transferred to the Holyoke, Mass., works of the **Worthington Corp., Harrison, N. J.** Mr. Fleming will be in charge of the sale and distribution of the company's line of portable air compressors and air tools.

SENATOR RALPH E. FLANDERS of Vermont, receives the Howard Coonley medal, the highest award in standardization, from Roger E. Gay, president, the American Standards Association and president, The Bristol Brass Corporation, Bristol, Connecticut. The ceremony took place at a recent meeting of the ASA at New York's Waldorf-Astoria Hotel.

Barber-Colman Co., Rockford, Ill., has appointed Robert A. Horner as divisional manager of the Machine and Small Tool divisions. Leo W. Reuland succeeds Mr. Horner as sales manager of the divisions and Fred B. Jensen takes over Mr. Reuland's post as production manager.

Otis L. Johnson

Otis L. Johnson is now sales manager of **Congress Drives Division, Tann Corporation, Detroit, Mich.** Mr. Johnson was previously assistant sales manager of the division.

Albert S. Fehsenfeld has been named manager for the Dallas, Texas, Sales and Service Branch of the **Black & Decker Mfg. Co., Towson, Md.** At the same time is was announced that Carl G. Gutman would succeed Mr. Fehsenfeld as manager of Black & Decker's Indianapolis Sales and Service Branch.

Andrews-Alderfer Company, Akron, Ohio, has announced the appointments of E. D. Parks, R. Craig Whitmore and G. W. Williams to the newly created posts of regional sales managers. Mr. Parks will supervise sales in the Midwestern, Middle Atlantic and Southern states. Mr. Whitmore will handle the New York and West Coast regions. Mr. Williams will be responsible for sales activity in New England and the Central states.

Bridgeport Brass Co., Bridgeport, Conn., has opened a new sales office in the Federal Square Building in Grand Rapids, Mich. The office is managed by Thomas H. Williams, formerly in the company's Indianapolis sales office.

David Herrin has been named assistant manager of the Cincinnati District for the **C. G. Hussey & Co., Pittsburgh.** Mr. Herrin has been associated with the company's Cincinnati office for the past 18 years.

Additional News of Your Suppliers will be found following the Industrial Developments section

CUTS MACHINE DOWNTIME, CONSERVES TUBE DOLLARS!

NEW G-E INVENTORY CONTROL SYSTEM FOR ELECTRONIC TUBES!

A convenient metal box holds your file of tube life cards. These show actual performance by types and applications—are a valuable guide in obtaining more hours of service from tubes in your plant.

A handsome blue leatherette binder, gold-lettered, contains your inventory record by months... also lists prices, essential ratings, and many other tube facts.

GET FULL DETAILS FROM YOUR G-E TUBE DISTRIBUTOR!

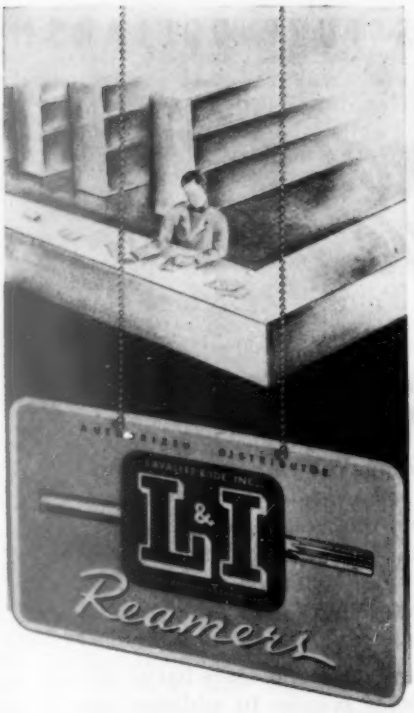
YOUR best protection against electronic outages is to maintain a planned minimum tube inventory that meets, type by type, the important socket requirements of your plant. Now G.E. brings you practical help in matching your emergency needs for ignitrons, thyratrons, phototubes, and other types, with tubes on hand, ready to install.

The experience of many thousand users backs up this new inventory control system. In addition to recording your stock and order position, tube costs are listed, so that you may budget replacement expense. An interchangeability guide helps you make tube substitutions when necessary. Life cards tell the story of tube performance, and point out where improvement is desirable.

Your nearby G-E tube distributor is waiting to help you install this up-to-the-minute control system. Phone him today! *Tube Department, General Electric Company, Schenectady 5, New York.*

GENERAL ELECTRIC

161-191



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CHICOPEE, MASS.

F.O.B.

FILOSOFY OF BUYING

BRITAIN'S counterpart of N.A.P.A., the Purchasing Officers Association, has a counterpart to our annual "Inform-A-Show" in the "Minibition" that is featured in connection with its annual conferences. Some of the members are less than happy about that synthetic name, which presumably denotes "miniature exhibition". One of the more vigorous critics, in a letter to the editor of *The Purchasing Journal* expressing his distaste for the term, points out that it might just as logically be interpreted in a number of other ways. Personally, he confesses to a "minor inhibition" against playing around with the English vocabulary, and a "minimal ambition" to prevent the foisting of such linguistic bastards upon the community.

• •

ONE of the more unusual combinations of professional duties is reported in a recent story in the Des Moines, Iowa, *Register*. Purchasing Agent for the Pittsburgh-Des Moines Steel Company in that city is Rev. R. D. Thomas, who doubles as pastor of the Bethel Baptist Church in the nearby town of Stanzel over the week ends. A regularly ordained minister, Mr. Thomas has devoted his off-work hours for many years in organizing rural churches, serving without salary.

The incorporated town of Stanzel has made local headlines as the fastest growing community in the state, having nearly tripled its population since 1951 (from 13 to 33), and as the location of the world's only left-handed clock, formerly installed in the barber shop for the convenience of customers who viewed it in the mirror, and recently moved into the roadside restaurant as a tourist attraction. The town is the dream project of George A. Stanzel, a Des Moines radiator seal manufacturer, who does his business mailings from the rural post office so that his correspondence may go out to the world with an appropriate postmark. In addition to the church and post office, municipal facilities include an airport, complete with control tower and hangar (now used for storage of farm machinery) which is described as "leaning slightly to the southeast, away from the usual prevailing winds". One plane landed on the airstrip during 1953—a flier who put down there to visit a relative on a nearby farm.

• •

IN RESPONSE to the recent Purchasing Opinion poll on back door selling, one of our readers submitted copy of a notice issued by his department to other department heads of the company, dealing with this problem. The notice reads:

Frequently, we receive requests from the several departments to place orders for materials or equipment with a particular firm, prices and other information having been received from one source only, and often the prices shown are considerably higher than those obtained by this department; therefore we will thank you, in future, to advise this department of your needs and we will be glad to secure full information, and, if a competitive product, to obtain prices from several available sources.

In most instances it is necessary for us to obtain confirmation of oral quotations given to the several departments in order to clarify f.o.b. point, cash discount, delivery date, etc., and as our organization is best equipped for this purpose, we respectfully request your fullest cooperation.

Attention is also called to the fact that there are still a large number of requisitions being sent to this office asking confirmation of material or supplies that have been purchased, often from some retailer, instead of handling through this department in order that we might purchase same from a wholesale concern at a definite saving to the company, not only in dollars and cents but at the same time relieving the employees of the various departments from having to lose time from their work in connection with such transactions. Therefore, in the future, unless situations arise necessitating im-

mediate purchases from an emergency standpoint, it will be appreciated if all purchases are handled through the Purchasing Department.

The notice is signed by the Purchasing Agent and countersigned by the President of the company, giving it official status. While it has not accomplished 100% compliance, it has effected a substantial improvement in the situation over a several months period.

• •

EVER SINCE Massachusetts Governor Herter came into office a year ago, the State Purchasing Department has been plagued with an unusual purchasing problem. The six foot five inch governor has chronic car-size trouble. When he folded himself into the official limousine, he looked like a man trying to tie his shoes in a crowded theater. The chairman of the Republican State Committee, an automobile dealer in Milford, provided a replacement which was some improvement but not a complete answer. A few weeks ago, the governor appeared in a spanking new special job that seems to fill the bill, with ample leg room plus air-conditioned comfort. At latest reports, there is still a minor mystery as to who is picking up the tab, since the transaction did not go througth the State Purchasing Office, which is supposed to take bids and issue the orders for all official cars.

• •

THE curious appetites of school children constitute one of the problems of Joseph F. Wiedel, Assistant Purchasing Agent of the Los Angeles city school system, accordcording to an interview with reporter Don Caswell of the L. A. *Examiner*. "They eat crayons just like candy," the buyer marveled. He had just bought 3 million sticks of chalk for the hungry students, and pointed out that, as a precautionary measure, the specification doesn't permit more than 1/20 of 1% of arsenic, lead, or other toxic elements. Erasers are another favorite delicacy, he observed. They also chew up pencils, but seldom swallow the bitter wood and graphite; however, in the lower grades, all pencils are of unpainted cedar so as to keep paint flakes out of small stomachs. The item is illustrated with a photo of conscientious Mr. Wiedel crashing a chair lustily to the floor. Merely testing it for the treatment it will get from his juvenile clientele, he explains.

No matter what your requirements for gray iron castings may be — from half a pound to half a ton — when you make Forest City Foundries Company your cast-iron parts department you can depend on receiving your castings as specified, delivered when wanted. All you need do is, call our office as you would your own production department.

Our representative will be glad to call to discuss your requirements and our ability to meet them in our two large foundries equipped with the most modern equipment.

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O-B GATE VALVES FOR . . .

Easy take-down
Quick re-assembly
in close quarters

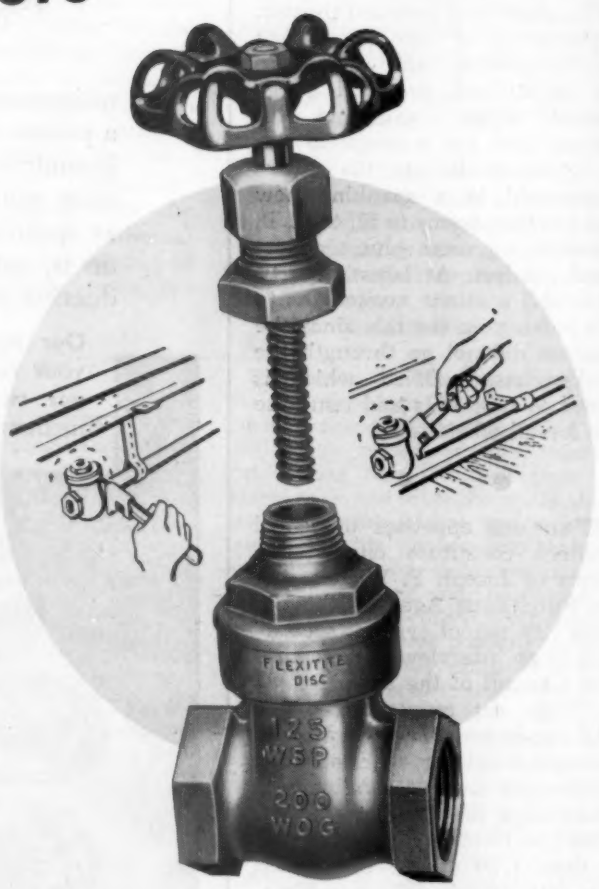
● O-B gate valves "break" conveniently and easily at the center joint. Stem, handwheel, packing nut and stuffing box come off as a unit. The Flexitite Disc® remains in the body. It stays in position for the stem to be re-inserted.

This easy take-down feature of nonrising stem gates simplifies installation in locations where space is limited. With most of the trimmings removed, there's more room for threading the valve body to pipe ends. Then when the body is in position, the valve can be re-assembled in a few seconds.

It's features like the easy take-down that make O-B gates preferred for industrial maintenance. They're available in sizes up to three inches, and for up to 200 pounds working steam pressure.

O-B bronze valves have been serving in industry for more than 60 years. Call your local Ohio Brass distributor for valves convenient to install and dependable in service.

Ohio Brass Company
Mansfield, Ohio



Ohio Brass Valves

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Who Makes the Price?

IN THE broader sense, price levels are the result of economic factors, including competition. In the practical sense, prices result from individual negotiations, or from the collective evaluation of such negotiations determining the character and weight of the economic factors involved, to arrive at an equitable and profitable level.

In several recent discussions of industrial marketing and purchasing, questions have been raised suggesting that it is out of line for the buyer to make an offer at variance with the quotation, advising the seller what the merchandise is worth to him, or what he can afford to pay, or where the seller stands in relation to competitive suppliers or competitive products. It is argued that the seller knows his own costs and how much he must or should receive for his product.

A purchase and a sale together make a single transaction, based on the willingness to buy and the willingness to sell. There is no rule of ethics or of business procedure that reserves the privilege of taking the initiative as to terms exclusively to either party in the transaction.

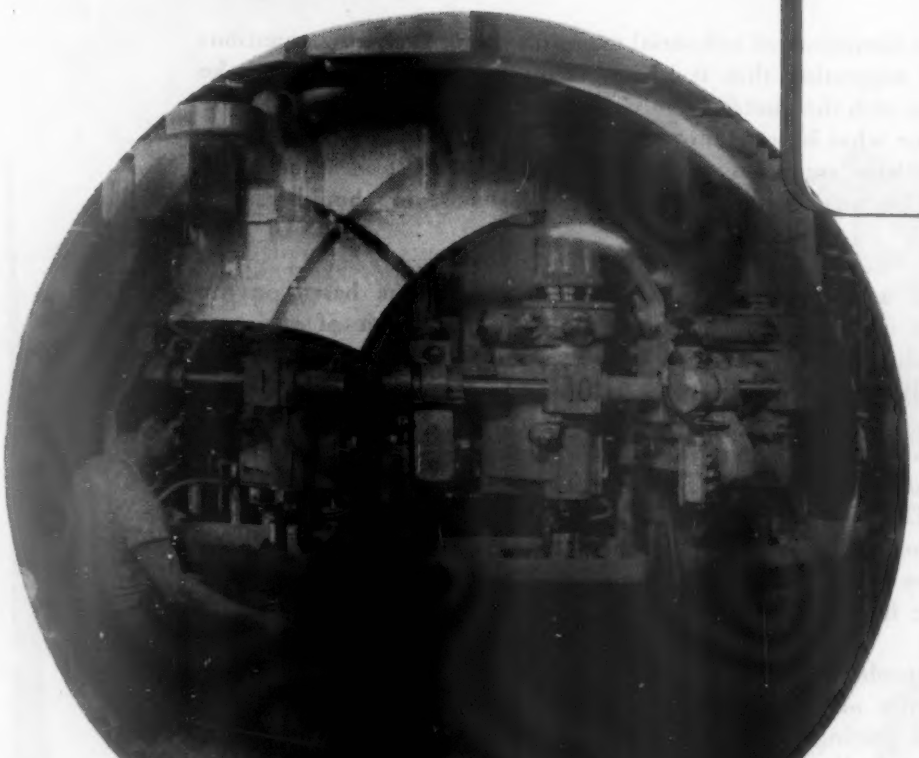
Obviously, the seller can refuse to sell—just as the buyer can refuse to buy—at a price he is unwilling to meet. But that isn't the objective in marketing and purchasing. The object is to get to a meeting of the minds, resulting in action—a purchase and a sale. In a dynamic commercial economy, both sides must be free and frank to express their capacity and willingness to do business under flexible conditions.

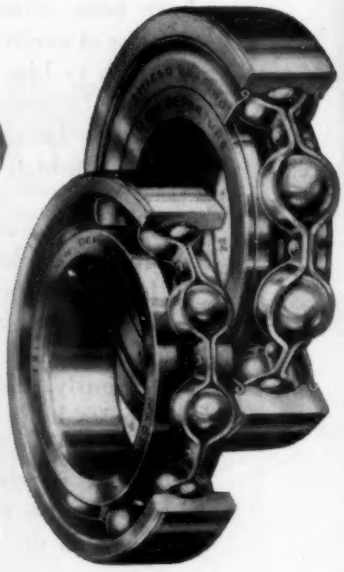
It is highly improbable that business in this country will ever revert to horse trading tactics or to double standards of pricing. But even for the cynics who regard pricing as a matter of "what the traffic will bear", there is no better way of finding that level than to listen to the buyer's side. That expression, by the way, does not necessarily imply extortion; it has a sound economic foundation in the willingness of customers to buy.

The purchasing agent has a basic responsibility to get value in return for his company's dollars. And value is in the mind of the buyer.

Stuart F. Heinritz

Money Savers in Motors and Machinery





NOTHING ROLLS LIKE A BALL

Cutting down on "down-time" is just one of the many contributions New Departure **ball** bearings have made to the machine age. For New Departures have proved themselves in countless applications, from electric motors to heavy industrial machinery. They take radial and thrust loads—or *any* combination . . . preserve accurate alignment of parts . . . reduce friction . . . require no adjustment for wear—and *virtually no maintenance!* Throughout industry, designers and engineers specify New Departure **ball** bearings for top performance.

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NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT
Plants also in Meriden, Connecticut, and Sandusky, Ohio

Highlights

This issue's important features summarized for the busy reader

For the many purchasing departments that shrink from the idea of a **Training Program** because they haven't the benefit of qualified planning and direction, or the knowledge of how to start and what to cover, or think they haven't the time to devote to this activity, there's a world of information and inspiration in the article on page 73, describing a self-generated and self-operated plan that has brought about some rather remarkable results. It gives the details of organization and procedure and policy, which can be adapted to any size department and any level of experience and need. Some of the fine material developed in this program will be presented in future issues, giving even more impressive evidence of the high calibre of training provided.

Standards for Inventory Control, described on page 95, represent an unusual application or extension of the principle of standardization, which has been found to be such an effective tool in many areas of purchasing activity. It's a tested plan, and gets results.

Coal Buying is tremendously important, for coal is the primary source of power for most industrial plants. The traditional reliance on Btu content as the measure of quality and value can be misleading. If you are not familiar with the properties of swelling index and size consist, essential to proper combustion and complete utilization of the coal you buy, the article on page 79 can help you to procure efficient power rather than boiler room trouble in making your coal contracts. It is a timely article with new information for the experienced coal buyer as well as for the novice.

This month's **Guest Editorial** (page 71) is contributed by John Crawford of Montreal, N.A.P.A. Vice-President for District 5. His topic is "The Scholar in Purchasing"—a theme that is well exemplified by his own scientific approach to buying and his long experience in the educational activities of the Association. In the editorial he suggests a long range professional program for greater recognition of Purchasing.

A simplified **Follow-Up System** that is giving better results with less effort, and at one-fifth of the former cost, is described on page 84. You may find the answer to one of your own problems in this company's method.

Getting longer life, improved performance, and greater ultimate value from your purchases of plant equipment such as **Industrial Trucks,** depends on observing an adequate, planned schedule of preventive maintenance. An expert in the field outlines such a plan for you, with full consideration of type and conditions of service, in the article and tables on page 90.

One of the perennial problems in a materials program involving a large number and wide range of items is to develop a practical system of **Classification and Identification** of purchased items. The numerical code described on page 97 has been successfully applied to a purchase and stores list numbering upwards of 50,000 separate items, and can be readily expanded to take care of four times that number without disturbing any established product designations while retaining the logical sequence of the plan. The detailed explanation of how this system was developed will help you in adapting the basic plan to your own particular requirements.

Is your company facing the curtailment or **Termination** of government defense contracts? Then turn to page 101 for an informed and down-to-earth recital of what the purchasing agent can do to effect prompt and equitable settlement of vendors' claims.

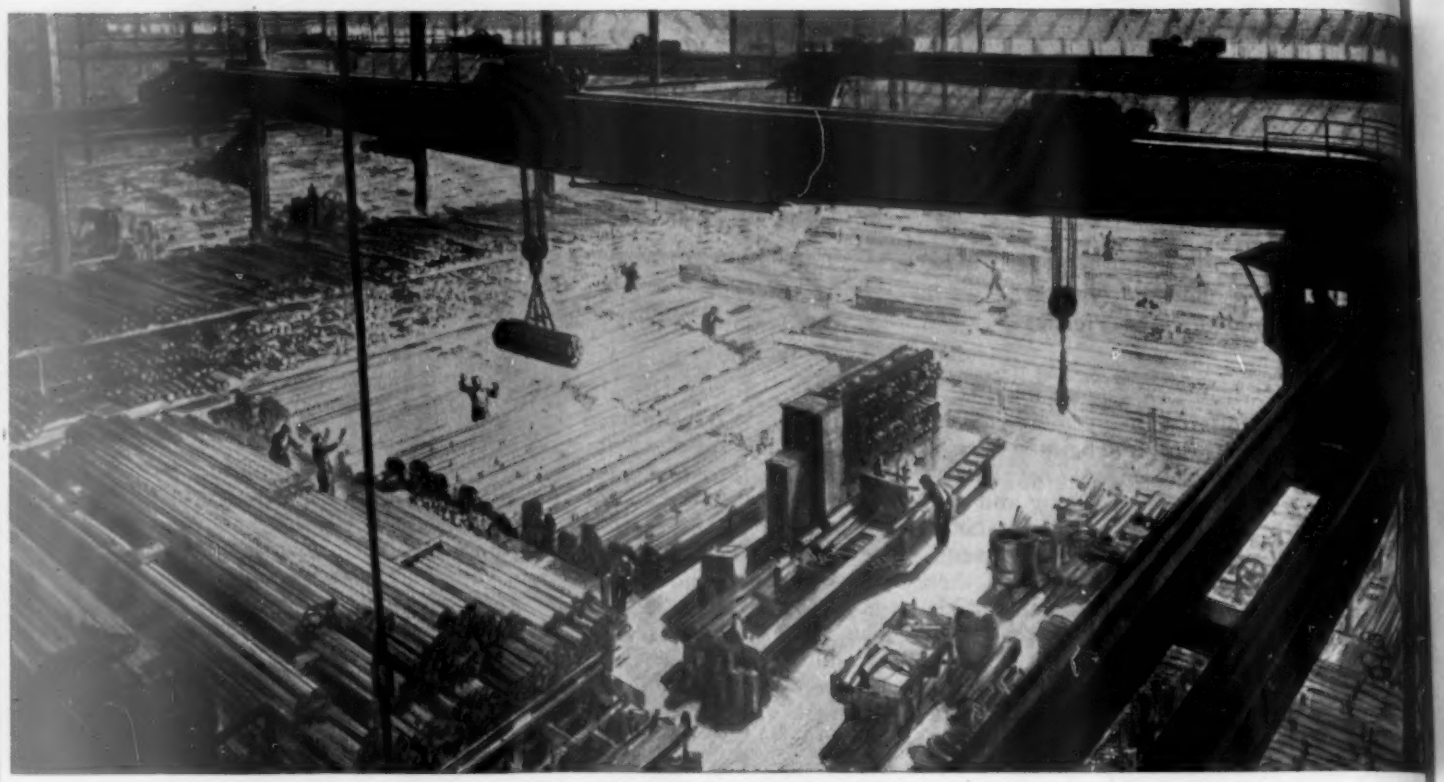
Can **Purchasing Department Efficiency** be measured? For a critical and constructive evaluation of the yardsticks available for such measurement, and how to interpret the results, turn to page 111.

Are you making full use of these monthly departmental features compiled especially for the purchasing agent? The **Washington Previews** (page 13) keep you informed on current developments in governmental policy. Another section is devoted to **Office Equipment and Forms** (page 173). Informative **Trade Bulletins and Catalogs** listed on page 19 are yours for the asking.

COMING—IN NEXT MONTH'S ISSUE

New Selling Technique: Sample Case on Wheels—Working through Committees: What and How

Shell Molding—An Inventory of Ideas—Construction Materials—Legal Signatures



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...again complete!

For years, as you well know, the demand for steel has exceeded the supply. So while we have been able to furnish many thousands of tons from our stocks, all kinds and sizes have not always been available.

Now we are glad to report that our stocks of Ryerson Certified Steels are large and complete. Even though the continuing strong demand still depletes a size here and there, you will find carbon steels, alloys, stainless—everything you need—on hand for quick shipment from your nearby Ryerson plant.

So call us whenever you need steel or have any question regarding what steel to use or how to fabricate it. Our experienced steel men will be ready to help you—and we can promise you prompt, dependable service.

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PLATES—Many types including Inland 4-Way Safety Plate

SHEETS—Hot & cold rolled, many types & coatings

TUBING—Seamless & welded, mechanical & boiler tubes

ALLOYS—Hot rolled, cold finished, heat treated

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

REINFORCING—Bars & Accessories, spirals, wire mesh

BABBITT—Five types, also Ryertex plastic bearings

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The Scholar in Purchasing

John Crawford of the Sun Life Assurance Company of Canada, Montreal, is President of the Canadian Council of Purchasing Agents' Associations, and Vice President of the National Association of Purchasing Agents for District 5, which includes the Calgary, Central Ontario, Eastern Ontario, Edmonton, Essex-Kent, Hamilton, Montreal, Niagara District, Sarnia District, Toronto, Western Ontario, and Winnipeg Associations.

A Scotsman by birth, he acquired his education, served his apprenticeship, and started his career in industrial engineering at Glasgow. His professional career was interrupted, almost at the outset, by the call to arms for World War I, and he served with the Scottish Lowland Division in the Egyptian Campaign and at the Dardanelles. For the last three years of the war he continued in government service in a civilian capacity, assisting in the management of a gun factory at Glasgow.

Then for five years, 1918-1923, he practiced as a Commercial Engineer, first in London, England, for three years, then back in his native city of Glasgow. In 1923 he migrated to Canada and set up practice as an Industrial Engineer in Montreal, which has been his home ever since. In 1925 he joined the staff of Sun Life Assurance Company of Canada, where he was successively appointed to the positions of Assistant Supervisor, Routine and Planning; Supervisor, Equipment and Services (including the purchasing responsibility); and, in 1940, Supervisor, Buildings and Equipment.

Throughout his business career, Mr. Crawford has been an ardent believer and active worker in ths Associations of his profession, with particular emphasis on their educational activities. He still retains associate membership in the Institute of Engineers, Scotland. He joined the National Office Management Association in 1929, organized the first Canadian chapter at Montreal in 1938 and served as its President through the formative years 1938-1940. Meanwhile he had been elected to office in the International organization, and was International President in 1941 and 1942. He is currently serving as a member of the International Advisory Council.

Within a year of taking over the purchasing duties at Sun, in 1932, he joined the Montreal Purchasing Agents Association. For thirteen years he was Chairman of its Education Committee, and for three years District Education Chairman. Since 1940 he has been a member of the Faculty of Commerce at Sir George Williams College, Montreal, lecturing on purchasing and office management. He was President of the Montreal Association in 1945, National Director and member of the Canadian Council 1947-1949, General Chairman of the Canadian Purchasing Conference in 1951, and Vice President of the Canadian Council in 1952, for the term preceding his election to National office.

In 1941 he assisted in the formation of the Institute of Administration in Quebec, and headed that organization from 1942 to 1944.

In addition to his collegiate lecturing, Mr. Crawford has presented papers on varied phases of purchasing and office management to many management, association, and educational groups. His untiring efforts, sound accomplishment, and solid contribution to professional progress have been widely recognized. In 1945 he received the Leffingwell Medal, highest award of the National Office Management Association, for outstanding contribution to management science. In 1950 he was honored with the Merit Award Key of the Montreal Chapter, N.O.M.A., for service at the Chapter level. And only a few weeks ago he received the Fellowship Award of the Canadian Council of Purchasing Agents Associations as "one who has made an outstanding contribution to the advancement of the science of Purchasing, over and above that normally expected of a man in his job or the duties of office in an Association."

By John Crawford

TO GROW with a profession and an Association such as ours, as some of us old-timers have grown, gives much opportunity for thought. My thinking has brought me much interest and some satisfaction as I note the impact of the times on this job of purchasing. It has not been altogether a contented interest, nor a complacent satisfaction, for throughout it all I am aware of the challenge that faces an Association such as ours.

In thirteen stimulating years of lecturing to future business executives and discussing with them the subjects of Purchasing and Management, I become more and more impressed with the need to meet this challenge at the student level. Here, where minds are fresh and ambition sets up the goals to be sought, our claim to management's recognition may be truly evaluated.

We who seek to underwrite the claim that Purchasing is Management must recognize that our identity will be established only because some one else thinks we are what we claim to be. The purest form of recognition will come from the students in business who, from a scholarly approach, and not disturbed by "the fever of a differing soul", as Carlyle put it, will measure us against a true standard of accomplishment.

In my thinking on the task facing the Association, conditioned somewhat by student reaction, I am becoming convinced that our complete acceptance and recognition by

management will come from the efforts of the Scholar in Purchasing.

The forceful purchasing agent—the man of action who was great because he had the power to buy—is being replaced by the Scholar in Purchasing, who has developed and acquired the Science of Procurement. The scientific purchasing agent, accustomed to the scientific approach to his job, with scientific planning of his work, will be the man who will finally prove our claim that Purchasing is Management.

It will be the Scholar in Purchasing, the business executive who by virtue of the authority of knowledge rather than by the authority of position, who will be accepted into management's highest echelon. Among his responsibilities will be to explore new trails, to perfect the needed union between the direction of management and the practice of purchasing, to raise this synthesis to the highest levels, and to prepare for the advent of acceptance, without qualification, of purchasing as a management function.

In his efforts to achieve and maintain conditions in harmony with the optimum, he must accept as his greatest challenge the development of others. The Scholar in Purchasing, as he acquires the qualifications for the development of himself, must pass these freely to others so that continuity of approach may be maintained. Herein lies his greatest source of strength as he strives for advancement toward the optimum status.

The Scholar in Purchasing will be generous in his cooperation with his fellow executives. Undisturbed by the lure of purely personal or selfish gain, he will place the products of his labor at the service of others. He will recognize, as he strives toward greater management recognition, the value of identification with others, so that each may become a part of each other—Management in Purchasing, and Purchasing in Management.

In purchasing, as in all phases of business, the scholarly approach is the only sound method of attack in solving new problems, in reaching new objectives. There are new horizons opening before us. Let us recognize the Scholar in Purchasing, at the student level and at the executive level, as our hope for recognition by others.

Introducing a New Office Location

WHEN the Standard Oil Company (Indiana) recently moved its purchasing department to new, ground-floor quarters in the Company's Chicago office building, the change was made easier for sales callers who had been accustomed to the previous location, as well as for those making their initial contact with the company, by issuing a special edition of the welcome booklet to serve as a guide to the more than 60 private offices in the spacious air-conditioned department.

The center spread of the 8-page booklet is devoted to showing a graphic layout of the office layout, with room numbers and an alphabetical listing of the buying personnel showing their new office location.

Another spread sets forth the complete purchasing department organization, with its eight major material groups, listing the products purchased in each group and the buyers responsible for each—a comprehensive "Who's Who" and "What's What" of the entire purchasing operation in the company.

The booklet explains the purpose of the move, which is part of a reorganization looking to improvement of purchasing service for the more than 50 locations in 15 states, for which the department purchases. The policy is one of partial decentralization, which will be gradually extended as company growth and changing times affect purchasing procedures. Major buying policies, however, will continue to be resolved in and directed by the general office at Chicago headquarters.

A self-generating, self-administered program

In-Service Training For a Purchasing Department

F. Albert Hayes

By F. Albert Hayes, Vice President for Purchasing
Bigelow-Sanford Carpet Company
New York

The staff conference program described in this article has produced tangible results in improved competence, morale, and accomplishment in purchasing, and in teamwork to the substantial benefit of the company. The meetings have developed some exceptionally thoughtful and practical papers dealing with purchasing principles and activities in terms of the actual problems and applications encountered in down-to-earth departmental operation. Representative papers from this series will be presented in succeeding issues of PURCHASING.

TRAINING which leads to better decisions in the daily operation of a purchasing department is a worth-while project for any company. This is particularly important to a manufacturer where the cost of purchased material is a substantial percentage of the total cost of the product. In the frequent cases where such costs are 40% or more of the item produced, a 5% saving in the cost of purchased materials results in additional income to the same extent as a 20% increase in sales. In reverse, unless the purchasing department is on the ball, the sales department is in trouble.

This is not to infer that a functioning purchasing department, already organized and properly staffed should be able, on command, to secure material prices magically reduced by 5%. The sales division will be happier and most effective when it has assurance that the administration of the purchasing department in all its phases is not overlooking any means of reduced material costs. Price is important, but is not the whole story, as there are other components of the cost of material, all of which are of interest and concern to a purchasing department.

Just as a sales division has meetings and methods designed to increase the effectiveness of sales efforts, so there is also value to be derived from training activities appropriately designed to maintain or increase the effectiveness of a purchasing department.

The Bigelow-Sanford Carpet Company recognizes and promotes suitable training methods for all divisions of the business, and there is frequent interchange of personnel in such activities. This article deals with the particular methods used for its purchasing division, as an internal and more or less self-generating and self-perpetuating activity.

While individual training in purchasing is deemed important, performance of the division is the result of group coordination and direction. The means used in addition to regular supervision may be called in-service training, which is designed to secure the best group result using a program prepared by the members of the group. In-service training is a tool which, if kept sharp and used intelligently, has plenty of potential for company profits.

Purchasing Objectives

There is another tool, the use of which is prerequisite to the tool of training. It is a statement, in writing, of the purchasing objectives and basic purchasing policies of the company. Such a document resolves the question of what is to be done

Staff conference meetings in the in-service training program bring together a compact group of progressive, professionally minded buyers from the three purchasing offices, sharing a wide variety and scope of practical experience and working toward a common goal of improved performance. Rotating leadership and meeting at various plant locations emphasizes overall company interests.

The caliber of personnel and broad gauge professional outlook is indicated by the fact that this group includes a Past President of N.A.P.A. and Shipman Medalist (F. A. Hayes); a Past National Vice resident of N.A.P.A. (W. R. Murray); the President of the Western Massachusetts Purchasing Agents Association (George Romieu); the Vice President of the Purchasing Agents Association of Eastern New York, formerly chairman of the Educational Committee of that chapter, and Instructor in Purchasing at Russell Sage College (Frank Plumley); and the Chairman of the "Women in Purchasing" Group of N.A.P.A. (Elsie B. Gruber).

and how it is to be done, but poses the question of how to better performance.

Bigelow's *Manual of Purchasing Policies and Principles* is a company statement, issued over the signature of the president, and distributed internally to all company personnel in position to originate or effect requisitions, and externally to all its vendors and interested parties. It is revised and re-issued as changing conditions warrant.

The objective of the purchasing division appear as follows:

(a) To secure for the Bigelow-Sanford Carpet Company, Inc., materials, equipment and facilities of specified quality and quantity at the time and place needed, and as economically as consistent with quality and service required; i.e., at the right price.

(b) To do this with a minimum investment in materials and supplies consistent with safety and economic advantage.

(c) To promote and conserve good vendor relations.

(d) To conserve the time of production and other executives by relieving them of the activities and time consuming negotiations attendant to purchasing.

(e) Through specializing and training to achieve the above objectives at less cost than otherwise could be done.

To "buy right" and "do it for less cost than otherwise could be done" takes a lot of know-how and a lot of doing. To secure and maintain recognition of attainment of those basic objectives is a further concern of a purchasing division, for only thus does it justify continuance as an organized and separate entity with standing equal to the other major divisions of a company. "How am I doing?" is indeed a proper subject for in-service training. If facts justify the claim of efficiency, then group morale is increased, while exposure and examination of the "boners" serves to prevent their repetition.

Analyzing Training Needs

The next step in devising an in-service training program is consideration of the composition and needs of the group. How to train, how to educate, are not matters of absolute rule. The group and its experience have to be considered.

In Bigelow, many of the department personnel have had extensive purchasing experience and training. Several are active members of local chapters of N.A.P.A., deriving benefit for themselves and the company by their participation in the programs and their contribution to leadership. Several have taught or are teaching purchasing as part of Association - sponsored courses. Others take evening courses in business subjects (the cost of which is assumed by the company upon satisfactory completion of the course).

All recognize that different procurement problems arise in a harried world, with conditions constantly changing. They are eager to participate in group activities looking to better performance of the division. However, the method and substance must meet their level of interest and maturity.

The Formal Program

Next comes the job of setting down on paper a formal in-service training program. The written construction of a program may be troublesome to prepare, but it forces thinking to provide the structure for real accomplishment. It should state objectives, the organization with which it deals, and the organization and schedule of implementation.

The wording of the Bigelow training program is not static. It has been changed—and will be changed again—to meet or anticipate changed conditions or needs. Even as this is written, there is considerable urge to revise or add to some of the following excerpts from the present program. However, preliminary to any change, the members of the purchasing group will be asked to review the program and make their suggestions as to betterment of any part, either by addition, subtraction, or modification. To review what we are trying to do, why and how, and seek improved methods, is a worthwhile subject for any discussion meeting.

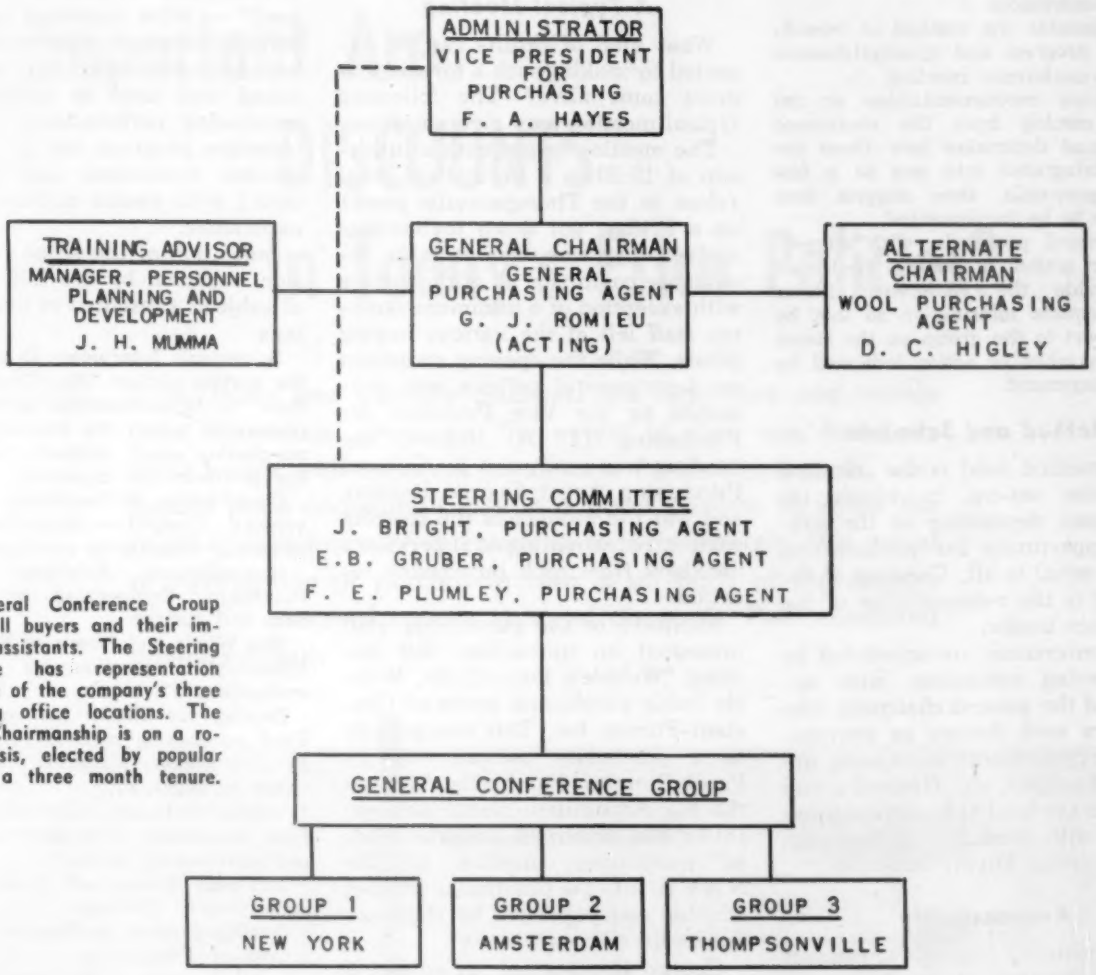
Aims and Objectives

The major aim of the division's in-service training program is to increase the effectiveness of group performance of the procurement function. To achieve this, the objectives of the program are:

BIGELOW-SANFORD CARPET COMPANY, INC.

ORGANIZATION PLAN FOR IN-SERVICE TRAINING PROGRAM

PURCHASING DIVISION



The General Conference Group includes all buyers and their immediate assistants. The Steering Committee has representation from each of the company's three purchasing office locations. The General Chairmanship is on a rotating basis, elected by popular vote for a three month tenure.

1. Improve the lines of communication and exchange of information, vertically and horizontally, throughout the purchasing division.

2. Provide the opportunity for both group and individual increase in skill, knowledge and interest by good supervision, plant training, working in teams, conferences and discussions.

3. Provide means whereby buyers can participate in the review or formulation of operating policies, and thereby implement them with a higher degree of understanding.

4. Provide buyers with information concerning management functions which are part of the procurement cycle but administered by other divisions within the company, and promote discussion thereon.

5. Provide means whereby the division activities can be more closely and effectively integrated with company activities through dissemination and discussion of company policies as they relate to purchasing, and promote discussion thereon.

The organization for in-service training is shown by the accompanying chart. The "general conference group" shown on this chart consists of all buyers and their immediate assistants. A general conference leader is elected by popular vote, and holds office for a period of three months, then is succeeded by another member of the group. His duties include arrangements and scheduling of meetings, notification of members of groups, keeping of minutes, introduction of the subject, and reporting on results. Where practical, he will actually conduct the conference.

A training advisor is available from the personnel division to provide administrative assistance, training, and such general guidance as may be required by the conference leader, the steering committee, or other participants involved in the conduct of the program.

The steering committee consists of the purchasing agents at the various buying locations (presently at New York, Amsterdam, and Thompsonville). This committee meets at regular intervals and functions with the assistance and guidance of the general purchasing agent and the advice or the training advisor.

Steering Committee

Duties of the committee include:

1. Select the subject or subjects to be discussed at a conference. This selection is to be based on their knowledge of current problems facing the department, and of those things about which purchasing personnel would like or need information.

2. Determine the objectives of each conference and the method of presentation that will accomplish the objectives.

3. Prepare themselves, as required, in the proper conduct of conferences

and the technique of conference leadership.

4. When conditions warrant, request that a specialist be called in to conduct, advise, or otherwise contribute to the conferences.

5. Determine the method of recording the progress and accomplishments of each conference meeting.

6. Review recommendations or requests coming from the conference group, and determine how these are to be integrated into one or a few sound proposals, then suggest how they are to be implemented.

7. Forward proposals, with suggestions for action, to general chairman.

8. Provide the conference leader with adequate information so that he may report to the group on the status of action taken or action indicated by top management.

Method and Schedule

The method used is the standard conference set-up, in which (in most cases, depending on the subject) opportunity for participation will be equal to all. Conduct of the meeting is the responsibility of the conference leader.

All conferences are scheduled by the steering committee, with approval of the general chairman, who considers such factors as convenience for participants, workloads, urgency of subject, etc. General group meetings are held at least four times a year, with interim local meetings at the various buying locations.

Responsibility

Responsibility for review, conduct and maintenance of the in-service training program is assumed by the general purchasing agent. It is the responsibility of the training advisor to keep the general purchasing agent informed of progress made, and to provide him with whatever special reports may be required. The training advisor is also responsible for general counseling with the vice president for purchasing and the general purchasing agent on all matters relating to the coordination of the three locations and their relationship.

In summary, the steps are:

1. Notice of date and place of meeting (to all buyers, from the chairmen).
2. Request for suggestions for discussion (to all buyers).
3. Screening of suggestions (by steering committee).
4. Preparation of agenda (by steering committee).
5. Assignments.
6. Invitations to other Bigelow personnel or outside specialists.
7. Meeting (presentation of papers, discussion, action points).
8. Preparation and distribution of minutes.
9. Follow-up of action points.
10. Preparation of articles for publication arising from papers presented and subsequent discussion.

A Typical Meeting

What kind of results can be expected by making such a formal program come alive? The following typical meeting may give an idea.

The meeting began with a luncheon at 12:30 in a Springfield hotel (close to the Thompsonville plant) on a Friday, got down to business at 1:45, and was over at 5:15. Attendance comprised all of the buyers with exception of a minimum skeleton staff left at the various buying points. While the opening statement on departmental policies was presented by the Vice President for Purchasing (F. A. Hayes), the meeting was conducted by General Purchasing Agent George Romieu, and was the product of the steering committee, consisting of supervisory members from each purchasing location.

Members of the purchasing staff presented an uproarious skit entitled "Wobble's Policy", Mr. Wobble being purchasing agent of Constant-Furore, Inc. This was prelude to a practically pointed talk by Frank Plumley, Purchasing Agent at the big Amsterdam plant, incorporating the principles and standards of purchasing practice of the N.A.P.A. into the purchasing policies adopted and published by Bigelow-Sanford.

George Romieu led an animated discussion concerning proposed revision of the Bigelow purchase contract for equipment.

Don Higley, Wool Purchasing Agent, surveyed the progress in methods of report to the Financial Committee (of which the V.P. for Purchasing is a member) concerning the status of raw wool, cotton yarns, and other basic commodities on which decision as to inventory levels and current purchasing program is based.

Charlie Pedersen, Buyer at Thompsonville, presented an excellent study, preliminary to discussion, of the application of value analysis to Bigelow purchasing.

Ed Parmelee, Purchasing Agent of the Defense Division, explained the detail imposed by defense contracts and illustrated the ingenuity necessary to keep up with the constantly changing requirements of quantity and quality.

Subsequently, minutes of the meeting were distributed, and the action points developed are followed through.

That's a meeting similar to many preceding ones. All have "clicked" and produced good results. The subjects discussed are always examined to determine "What's in it for Bigelow?" — what improved technique, what bit of timely information, what better coordination can be established and used to enable better purchasing performance? It is an objective program, not permitted to become routinized, and is illustrated with events within our own experience.

Indication of the scope of discussion is shown by the following list of subjects presented at prior meetings:

Salesmen's Interviews (a critique of the motion picture "Mr. Craig has the floor" a Johns-Manville sales method picture in which the functions of the purchasing agent, engineer, and building architect are depicted).

Coordination of Purchasing with Inventory Control — determination of economic quantity to purchase.

Strengthening Relations between Purchasing, Engineering, and Production.

The Why's and How's of Purchasing Efficiency—a questionnaire for self-evaluation.

Buying for Profit (an analysis of Ford purchasing methods as reported in PURCHASING Magazine, and their value to Bigelow).

Vendor Relations (discussion arising from comments of vendors concerning our purchasing manual).

Business Status and Budgets.

Commodity Reviews.

Quality Control in Bigelow.

Cost of Purchasing.

Legal Aspects of Purchasing.

Standardization.

Defense Purchasing.

Purchasing of Printing, Office Supplies, and Equipment.

The program set forth above seems to meet the needs of Bigelow as now determined. Modifications to fit a company of any size which has an organized purchasing department can easily be made. Perhaps the plan has application in the educational program of chapters of N.A.P.A.

What is really necessary for success is the realization by management of the value of good purchasing, together with management support of a program of betterment, and its recognition of results. All of that we have in Bigelow.

Any program has to have the spark of interest to make it function. Self-generated interest, derived from participation and direction of the program, is the best assurance of success.

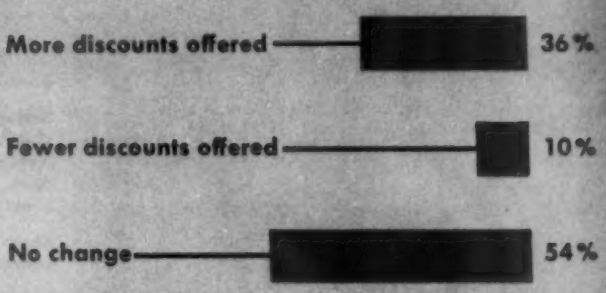
These, in substance, are the essential ingredients of the Bigelow program for in-service training.

PURCHASING OPINION

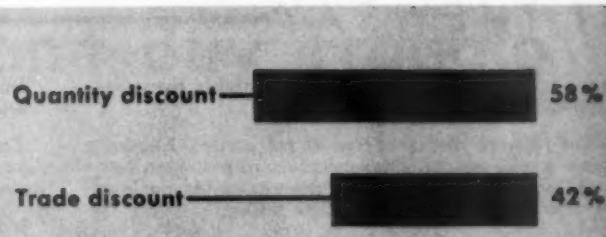
How Important Are DISCOUNTS In Today's Price Policies?

Cash, trade and quantity discounts are legitimate and widely used commercial practices. The extent of their use, however, often varies with economic conditions. Purchasing agents, who handle price negotiation, are in a good position to judge the relative importance of discounts in today's markets. We asked a cross-section of purchasing men in all parts of the country about the status of various types of discounts. Their combined answers follow:

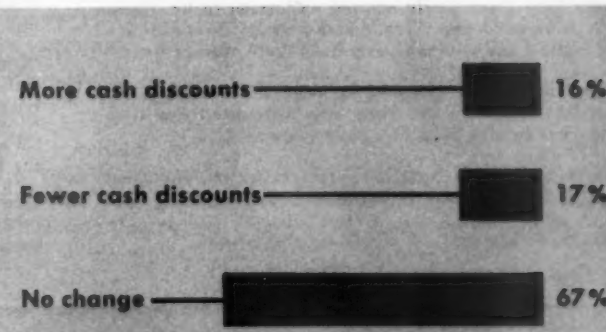
1 Have you noticed any recent change in the practice of offering discounts from established price schedules ?



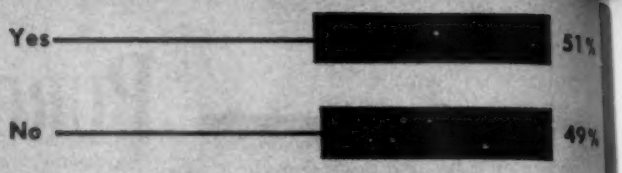
2 What type of discount do you find most prevalent in today's pricing policies ?



3 Have you noticed any change in cash discount practices ?



4 In your opinion, are discounts being used today in lieu of outright price reductions ?



5 Do you find that discounts are an important factor in today's competitive selling ?

6 Do you feel that the recent Supreme Court decision putting the burden of proof on the Federal Trade Commission in cases of alleged price discrimination has liberalized the practice of giving discounts ?

7 Have you made recent efforts to obtain discounts in fields where they have not heretofore been given ?

If so what has been the vendors' reaction?

Of those who say "yes," slightly more than half reveal that the response has been generally favorable. If discounts are not always given immediately, they are at least given serious consideration. Many said that when volume to be bought is great, discounts are more quickly given. Discounts to match competition are also more readily given.

Somewhat more than a third say that reaction has been unfavorable. Chiefly, it appears, because suppliers want to maintain the trade price level and do not want to be the first to start price-cutting "wars." High costs, ethics, and outright dislike of the practice of discount are other important reasons.

About 10% say they have had a mixed reaction, with some suppliers granting discounts and others flatly refusing them.

WHAT THEY SAY

"We believe reductions in price to be more desirable than discounts even though the end result is the same."

"Discounts seem to have displaced recent price rises. Electric light bulbs are a good example. Prices went up in past year, but discounts have also increased. Trade-in allowances for old machinery also have become a factor in competitive selling."

"We select cash discounts for payments *first* – others as to their importance and selection by the P.A."

"Cash discounts have been badly abused and seem to be disappearing, except in supply houses. Trade and quantity discounts are on more solid ground and will probably hold their present level."

"Vendors giving the largest discount or price decrease because business is harder to get are the same ones who keep boosting prices as the market swings back to a sellers' market."

"Steel companies have been equalizing freight to remain competitive with mills located closer to point of consumption."

"We are beginning to buy instead of just writing orders."

"Intend to circularize vendors in the near future to secure better cash discount terms."

"Today's buyer, by talking yearly requirements to vendors, should be able to cut prices on purchases – especially on special items for his production only."

"It has been easier to obtain discounts on products made to our specifications than to obtain them on standard items."

"Believe Question 4 is a very pertinent one and that this practice, if very widespread, could cause an unrealistic picture in the various price trend reports.

"Quality merchandise still remains steady. Only off-brand materials have to discount to move. We are not interested in this type of merchandise."

"We have our vendors ship everything prepaid in order to ease the burden of freight which we have had to assume."

"Have noticed tendency to up-grade. In one product, customarily sold in two grades, prime and semi-prime, we recently ordered semi-prime and received prime – at no increase in price."

Don't figure coal values in Btu's alone

(OEM Defense Photo, by Palmer)

A clear atmosphere is no indication that this plant is idle. As a matter of fact, it is the power house of Ford's River Rouge plant at the height of war production in World War II. When this photo was taken, it was burning the proper coal—2,500 tons per day—in the proper equipment, for complete, efficient combustion.

When You Buy Coal . . . . . Don't Buy Trouble

By A. Wyn Williams

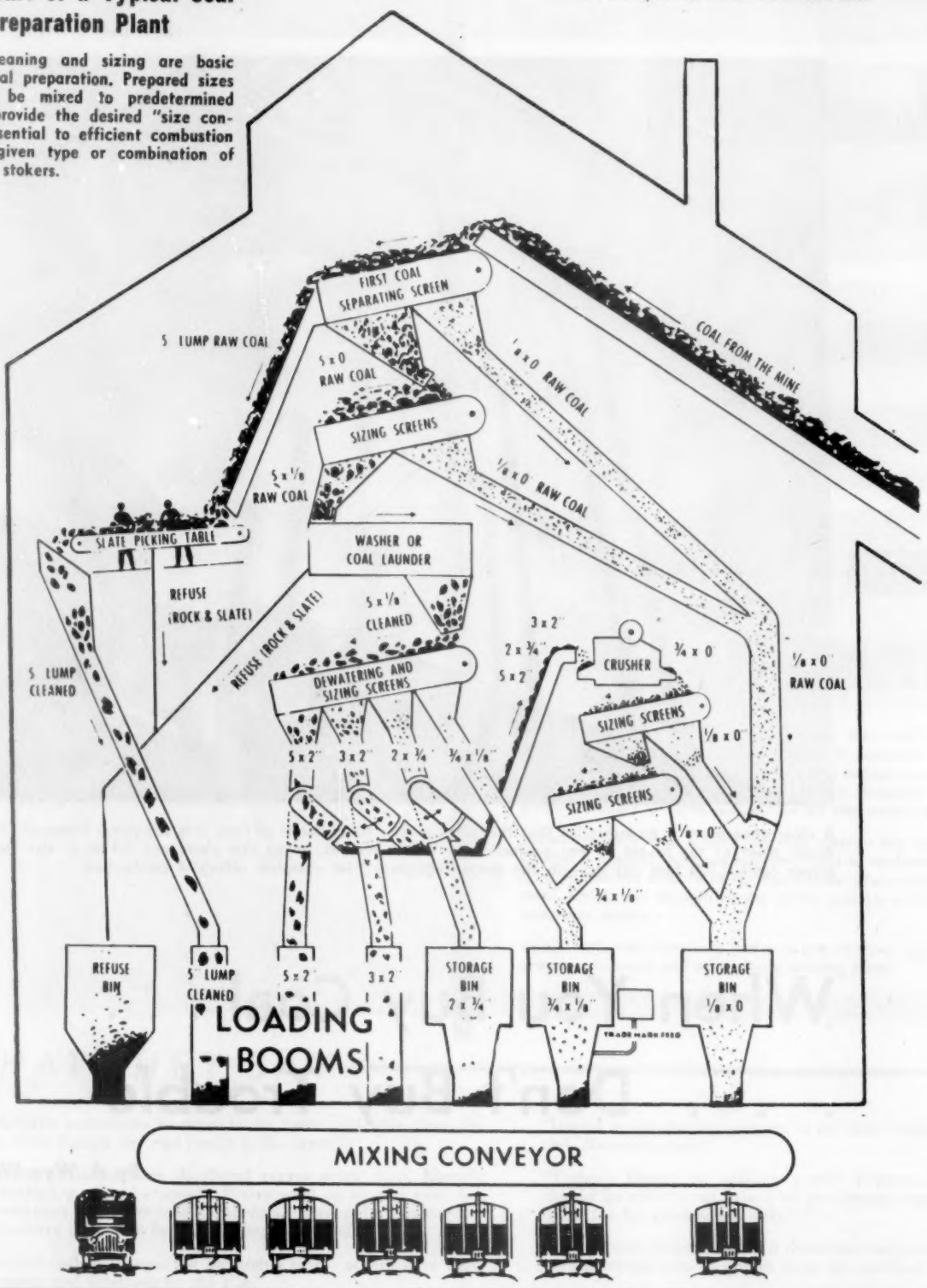
OF all the functions performed by the purchasing agent for an industrial plant or for a large commercial establishment, none is more important than that of securing an adequate and efficiently performing fuel supply. For the heart of the factory is the power plant. It not only supplies the energy on which the productivity of intricate machines and tools depend, but also the space heat in the cold season which safeguards the efficiency, morale and health of personnel, whether they are workers on the production lines in manufacturing plants or white collared help in business offices or commercial establishments.

Despite impressions to the contrary, fuel still means coal more than than any other form of combustible to the largest concentration of industrial activity in the world—the huge triangle whose base lies on the eastern seaboard from Maine to Virginia and whose apex is in Minnesota. In this area, coal supplies twice as much energy to keep the wheels of American industry turning as its next fuel rival, oil, and ten times as much as the well advertised pet of the socialistic planners—hydroelectric power.

Flow Chart of a Typical Coal Preparation Plant

(Courtesy: Bituminous Coal Institute)

Careful cleaning and sizing are basic in good coal preparation. Prepared sizes may then be mixed to predetermined ratios to provide the desired "size consist" so essential to efficient combustion with any given type or combination of grates and stokers.



Because coal plays such a dominant part in keeping America industrially strong is sufficient reason why any techniques, in the proper selection and procurement of coal that will make a plant operate more efficiently, should be worthwhile studying. For ordering coal, best suited to a plant, needs more skill than that possessed by the uninstructed novice. This is because coal is not a product that can be purchased as a packaged product. It is an extremely variable product into the composition of which many different chemical and physical properties enter.

Therefore, the rather widespread practice since World War II, of buying coal on the "cents-per-million-Btu-basis" is not by itself sound. It may fall far short of a proper criterion of the coal's value and of whether the price paid has been well spent. The other properties of the coal must be jointly considered for proper evaluation. Until the

purchasing agent has taken these into consideration and determined what effects they may have on the coal burning installations of his particular plant, he will not know whether an apparently good-heat-giving coal many not have been a most uneconomical purchase from an overall power plant point of view.

Btu Content Is Not Enough

A high Btu coal can very frequently cause costly short term replacement of equipment parts, with all the corollary losses from stoppage of production for boiler outage. High Btu coal can be a plague smoking nuisance to an air-pollution-conscious community, with consequent impairment of good public relations and more often the need to purchase expensive smoke and fly-ash trapping devices. On a high Btu coal, because of some hidden properties may fail in the very purpose for which it was purchased—it may be unable to deliver the required steam load. It can be readily appreciated that a coal which does not enable the power plant to do its job properly is a financial liability that extends far beyond the cost of the fuel bill itself.

Failure in the power plant strikes at the core of the plant's efficiency and economical low cost production. It means low steam, air and water pressures; low temperatures; low voltages. The costly ramifications of these are varied and extensive. For example, low steam pressures in forge plants mean inferior forgings; power failures in foundries mean cold metal and inferior castings; low voltages impair cutting speeds, cause slow production and increased scrap in machine shops. etc., etc. Low steam temperatures, of course, besides affecting various heating processes, may also affect personnel morale by indifferent space heating, leading to inefficiency and increased absenteeism.

Two Important Properties

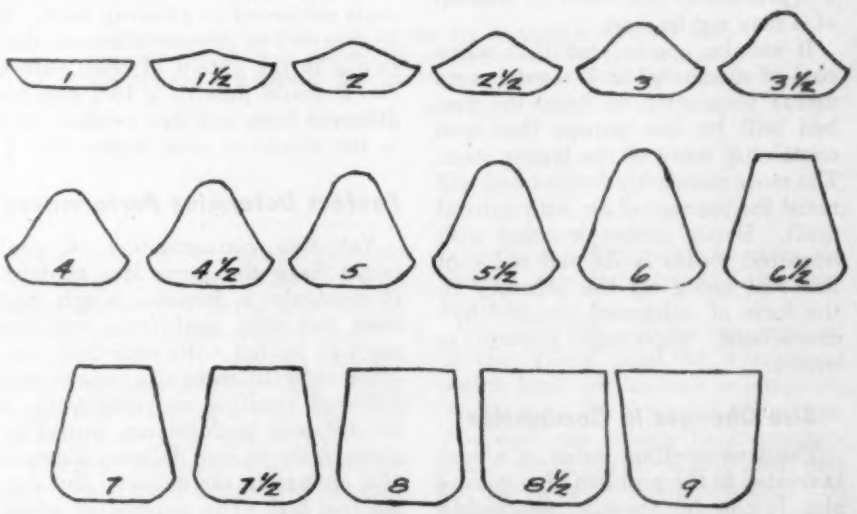
The blame for these and other plant production shortcomings could be rightly charged to the purchase of high Btu coal if this had been done without regard to its other properties. What, then, are some of these other properties of coal for power plants on which the purchasing agent should seek reassurance from his coal dealers before placing his contract? First and foremost are two physical properties which are interrelated: (a) size consist of the coal as delivered on the grate or into the furnace of a spreader or pulverized coal unit; (b) the free swelling index of the coal, especially in the case of grates.

The importance of these two is due to the fact that they affect the burning of any coal, no matter how high its heat content. There is no mystery about what makes coal burn to give the maximum heat and without causing any smoke nuisance whatsoever. All that is needed is

(Courtesy: Bituminous Coal Institute)

Stoker coal being sized on a battery of vibrating screens at a cleaning plant of the North American Coal Company.

(Courtesy: Fairmont Coal Bureau)



Crucible Swelling Test for Coal

Standard profiles and corresponding "swelling index" numbers. Each of these coke "buttons" started with identical quantities of different types of coals. This property is especially important when underfeed stokers or traveling grates are used.

Fusibility of ash is measured by noting the temperatures at which an ash cone changes form: (1) initial deformation temperature; (2 & 3) softening temperature; (4) turning to fluid; (5) fluid temperature.

(Courtesy: Combustion Engineering Superheater Co.)

to bring the right amount of air into contact with the coal at the right temperature, and the combustible part of the coal will burn completely without causing any smoke conditions. The two physical properties, size consist and swelling, can interfere with the air supply.

Blending for Size Consist

It is very seldom that the coal salesman will have any information on these properties in the coal he is trying to sell. He can tell you the size which he is prepared to sell. But that is no guide to the size you may actually get. Thus a 1¼" x ¾" size only guarantees that no coal will be bigger than 1¼" or smaller than ¾". Similarly, 1¼" x 0" only guarantees that the bigger coal will not be retained on a screen with a 1¼" round hole. It does not guarantee what proportion of it will be 0" (practically fine dust) or that all of it may not be dust.

It can be appreciated that when coal of a size ¾" x 0" contains an undue proportion of fines, the fuel bed will be less porous than one containing more of the bigger sizes. The more compactly formed bed will resist the passage of air with natural draft. Hence poorer burning with impaired steam loads and a lot of the coal going up the chimney in the form of unburned, cracked hydrocarbons, popularly known as smoke.

Size Changes in Combustion

The free swelling index of a coal is related to the problem of size consist. It can be equally responsible for clogging up air passages on grates, reducing steam loads and forming smoke nuisances. This physical characteristic is present in most coals, though not in all. Most bituminous coals, when heated rapidly, swell as volatile matter is escaping and the coal is changing into coke. If the coal is in a finely divided state, under 1/60" diameter, it will usually fuse into a solid mass of coke. In swelling, the coal will cause the bed to become less porous, obstructing that passage of air, which in the *sine qua non* of an efficiently operating, steam-load delivering furnace.

Why the purchasing agent should know about the swelling index of the coal he buys, is that the extent of the swelling varies greatly with different coals. The American Society for Testing Materials has prescribed a method by which this property may be determined and classified. Their lowest classification is No. 1. Their highest is No. 9. The accompanying chart shows the profiles of coke buttons produced from the same quantity of different coals subjected to swelling tests. It is apparent to anyone that coal that swells to the extent of coke button No. 9 would provide a fuel bed far different from one that swelled only to the extent of coke button No. 1.

Factors Determine Performance

Yet two consignments of coal might have the same Btu content. If suddenly a furnace which had been fed with coal from one bin were to be fed with coal from another with different size consist and different swelling characteristics, a far different performance would be given in steam load delivery because of a change in air delivery through the fuel bed. The purchasing agent who had taken pains to see that his plant was supplied with high Btu coal—and stopped with the consideration of this factor alone—would find that he had only bought trouble, because the coal had been bought without heed to physical characteristics that the average coal salesman does not discuss.

As pointed out by one of the country's leading fuel engineering research organizations, the Fairmont Coal Bureau, the importance of free swelling index of a coal ranges from "little importance" on a spreader stoker through "much importance" on underfeed stokers to "tremendous importance" on traveling grates.

However, when considering the swelling characteristics of coal for stoker operation, one must consider "size consist" at the same time. The burning of a coal on stokers is determined by a combination of these two properties, not by either property alone. A high swelling coal, even a No. 9, with coarse sizing —with the fines screened out—may give as good a performance as that obtained from another coal having a much lower swelling index and containing much more fine sized coal.

The Properties of Ash

There is another physical property of coal that may cause burning trouble, if full information is not in the possession of the purchasing agent—the fusing temperature of its ash content. The ash part of coal is the incombustible part and is pure economic waste in the coal except for a limited use in affording protection to grates from excessive heat.

Because it is an economic waste, the ash content of a coal is always stated, as it affects the price. The higher the quantity of ash in the coal, the less proportionately is the amount of energy-producing material in each ton of coal. Also, any increase in ash content requires the handling removal and disposal of larger quantities of the useless product, resulting in increased operating and maintenance expense.

Unfortunately, even if coal with a minimum of ash has been bought, more trouble may have been bought than if coal with twice as much ash had been ordered. It is not enough to know how much ash is in the coal, it is also necessary to know what its character is and its general composition.

Especially is it important to know the ash fusion temperature. This is the temperature at which the ash begins to melt. And melting ash can cause no end of trouble in the boiler room. It can cause clinkering on the grates of the stokers and

collection of ash deposits difficult to remove from the heat transfer surfaces of both stoker-fired and pulverized-coal-fired furnaces. Low temperature fusion ash can be the greatest single cause of trouble in the boiler room.

How open to blame the purchasing agent exposes himself, if he does not know the ash fusion temperature of the coal he buys, can be appreciated from the fact that the ash fusion can vary from 1900°F to 3100°F in different coals. The 1900° F fusion ash would tie almost any stoker in knots; the 3100°F fusion ash would function satisfactorily with almost the most antiquated furnace. In buying coal, relate the character of the ash to the equipment that is to burn it.

Effect of Sulfur Content

Another impurity that can cause trouble in coal is sulfur. It can vary from under 1% to over 5%. The purchasing agent is not at such a loss with sulfur, as the quantity is specified. What he must remember is that coal containing sulfur above 2% content is inviting trouble, not so much in delivering the heat (as is the case with other properties we have discussed) but in maintenance of equipment and in storage problems.

The final flue gas temperature leaving the economiser of a boiler or air heater depends on the sulfur content of the coal fired. This means that coal high in sulfur forms an excessive amount of sulfuric acid if the temperature of the flue gases gets too low. Coal with more than 2% results in excessive costs of replacing corroded boiler tubes. Also, when storing coal, high sulfur is a cause of spontaneous combustion.

(Courtesy: Heyl & Patterson, Inc.)

Automatic coal samplers such as this are designed to obtain a representative sample from the moving stream of coal. It is then crushed and reduced to a quantity that can be conveniently handled for analysis.

Other Factors

There is no room in this article to mention all the other matters that should be taken into consideration, such as moisture content, friability, abrasiveness, grindability, etc., all of which have their effect on furnace performance or on equipment maintenance. We have pointed out some properties that are frequently overlooked but are becoming increasingly more important.

This is, firstly, because the inflationary times demand the utmost efficiency in any plant for profitable production and a properly operating boiler room is vital for this. Secondly, because the properties we have discussed at length vitally affect an increasing problem for industrial plants, that of not being accused of being bad neighbors in air-pollution-conscious communities. Properly selected coal will go a long way to meet these problems. But ordering a high Btu coal is only a very partial answer.

Getting the maximum efficiency out of coal fired equipment depends on such a variety of factors that, once the coal with desirable combination of qualities is found, every effort should be made to have it supplied without interruption. That is why a multiplicity of suppliers is generally preferable to one, although the latter would be less trouble.

Another thing to be remembered is that there must be a constant watch kept on the coal as supplied. There must be frequent samplings. For coal can change its characteristics overnight if a different part of the mine is being worked. The buying of coal is a skillful art in which three elements are balanced against one another—uniformity of supply, quality, and cost. Of the three, uniformity of supply outranks the other two, even quality.

Better records at one-fifth of former cost

Improved Follow-Up Control

By Gordon P. Smith, Purchasing Agent, Machinery Division, Dravo Corporation, Pittsburgh, Pa.

WHENEVER an improvement in procedure is made, it seems customary to wonder "how we ever got along" under the old methods. This is exactly the position in which we find ourselves now.

This office does the purchasing for six different departments of the Machinery Division of Dravo Corporation. This also includes the purchase requirements for jobs in process all over the United States. Obviously, it is the sort of program in which consistent follow-up is essential.

Currently, we issue about 15,000 purchase orders a year, with an aggregate value of some $16 million—and the trend is constantly upward. In the past, our follow-through and expediting was based on a regular paper copy of the purchase order, appropriately annotated as necessary. This was fine on a one-item order, or on a purchase that required little follow-up attention. But it is easy to see how the margins of such an order copy could become thoroughly filled with overlapping notes in cases where extended action was needed.

Gordon P. Smith

Besides, the orders were kept in standard vertical files. Each time reference was necessary, or a notation had to be made, a clerk would remove the order copy from the file, bring it to the proper desk, and subsequently refile it. Order copies were out of the file as much as they were in, so that in addition to the regular clerical work involved it frequently happened that a great deal of time was spent in searching for specific wanted copies that were temporarily out of the file. All of this we accepted as a normal operational hazard, but now we wonder how we ever got along under such conditions.

In the course of personal expediting, several of our staff were impressed with the control methods used by other firms, and I made it a point to investigate. An idea commenced to take shape as soon as I did so.

Further investigation and discussion resulted in development of the method which we are now using. The system is apparently unique in application, since the proper form for activating it had to be specially prepared, though used with standard filing equipment.

The paper copy of the purchase

order for follow-up has been replaced by a "hard" copy, printed on light weight bristol, designed and die cut to fold and fit into a Remington Rand Kardex pocket. This hard copy is typed along with the regular set of purchase order forms. When folded and placed in the Kardex pocket, a complete 8 x 5 inch card is available for all notations concerning the order. Lifting this card, without removing it from the file, reveals the complete order copy.

These purchase order cards are arranged numerically on Kardex slides in four castered, mobile Kardex cabinets. Instead of having a girl pull a score of order copies from vertical files, the proper cabinet is merely wheeled over to the desk of the expediter concerned. The control copy never needs to be removed from the file, and can always be located instantly.

We estimate that the direct economy in clerical time and effort, in avoidance of constant filing and refiling, runs as high as 80%. In the face of steadily increasing volume, we have eliminated departmental overtime, and there is no backlog of unfinished work.

The cards are visibly indexed by means of a title insert slip which shows the department identification letter, purchase order number, and the name of the vendor. A printed scale indicates days of the month, so that colored signals can be inserted to flag follow-up action at the proper time. The orders are arranged in numerical sequence, and of course the mobile cabinet files contain only unfilled orders.

The visible control feature makes possible constant checking in a very simple manner. Everything is noted on the front of the card—acknowledgement of the order, delivery promises, correspondence, shipping notices, etc. All correspondence and other papers are filed separately as before. A glance at the notations on the Kardex card tells the complete, up to date status story on the order.

Like all efficient methods, our Kardex control is simple to operate and keep up to the minute. We commenced using it in May, 1951, so that there has been ample time and experience to evaluate it. We have been thoroughly pleased with its performance ever since.

THEN: Under old system, file clerk pulled follow-up copy of purchase order for each reference or notation desired by Chief Expediter Oscar Fehrman. Copy was later refiled.

NOW: With mobile Kardex file beside his desk, expediter instantly refers to order copy, takes indicated action and makes proper notations. Office time saving is estimated at 80%.

More than 44,000 sales representatives go through this doorway every year, to do business with North American Aviation's Material Division. The company has 6,000 vendors on its supplier list, and purchases average $830,000 every working day.

A Purchasing Department in ACTION

By Rulon Nagely, Director of Material, North American Aviation, Inc., Los Angeles, California

LEFT: The warehousing activities utilize 550,000 square feet of floor space. Monthly receipts average 161 freight car loads and 3,500 truck loads of diversified materials. Company trucks make 26,000 pickups and 32,000 deliveries in the course of a year.

CENTER: Stockrooms fill requisitions at the rate of 300 per hour, 5,800 individual items per working day. Supply items alone are a big factor. Typical examples: 70,000 fluorescent light bulbs per year; 113,000 sheets of 8½ x 11 duplicating paper per day!

RIGHT: Government-furnished property for research and for installation in end-products is handled through the Material Division, must be carefully segregated and scrupulously accounted for. This activity involves about $30 billion per month.

LEFT: The Material Division employs approximately 1,100 people at the Downey and Los Angeles plants. 40% of these are engaged in purchasing activities. The Division also includes the Warehousing, Traffic, and Salvage Sales Departments in its responsibility.

CENTER: With 45,000 distinct items on the purchasing list, each buyer is a specialist, responsible for a particular category of material. He is expected to have the same outlook as if he were running his own small business, with an eye on the profit and loss statement.

RIGHT: No airframe manufacturer is self-sufficient in terms of production facilities. About 48% of purchases are made from specialized sub-contractors having fewer than 500 employees. A large staff is maintained to investigate and develop new supply sources.

THE views and comment on these pages are extracted from an address by Mr. Nagely before the N.A.A. Management Club, outlining the work of his department.

"If it seems that too much emphasis has been placed on statistics" he said, "it should be remembered that they are the everyday working tools of the Material Division. Naturally, however, accomplishments are the real measure of the worth of the division and its departments. All of them have simply one objective: to serve everyone in the company by having the right material in the right place at the right time.

"To pay the lowest price for an article is not always the most important factor in its purchase. Experience has shown that the best results are obtained when every effort has been made to observe these precepts:

"First, determine that the supplier's facilities are adequate to make the parts or assemblies needed without acquiring additional equipment or buildings;

"Second, determine whether the supplier has the sort of equipment and trained employees necessary to meet requisite quality standards;

"Third, determine that he has the ability to meet the schedule requirements;

"Fourth, determine that he has sufficient financial stability and management know-how to avoid becoming a burden;

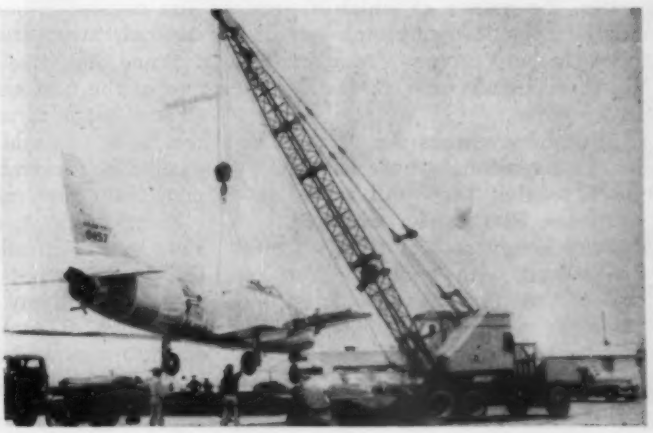
"Last, determine that his plant facilities are, if possible, reasonably close to North American's own facilities.

"It would seem obvious that good purchasing can make a major contribution to the corporation's profit and loss statement."

Mr. Nagely's experience in purchasing extends over twenty-six years, dating back to 1927. He recalls that when he was starting in on his purchasing career, it was not unusual for foremen and supervisors to do the buying for industrial plants as the need arose—often quite casually, without benefit of records and controls. Today, purchasing and its related functions are highly developed operations that require the closest coordination among all members of the management team. The department that he directs is an excellent example of specialized, efficient, profit-making procurement.

Scrap and by-products generated in the manufacturing departments aggregate 6,000 to 7,500 tons annually, chiefly aluminum clippings, borings and turnings. Surplus and salvage sales amount to well over a half million dollars per year.

The end product is the result of having the right materials at the right place at the right time, at the right cost. If purchasing efficiency slipped as little as 2½%, the resulting loss would be equivalent to the company's net income after taxes.



Structural components made largely of air!

Buying "HONEYCOMB" Materials

By Keenan Goodman, Purchasing Agent Research Associates, Los Angeles

Here's how it started—familiar paper novelties based on the honeycomb structure principle.

HONEYCOMB materials are so called because of their resemblance to the structures produced by bees. In some forms—such as the collapsible paper honeycombs used in fabricating Christmas ornaments—they have been with us for many years. The more recent adaptation of this structural principle, utilizing a variety of base materials and put to work for more serious and utilitarian purposes, is relatively new. As an industrial factor, they may be regarded as new materials, with actual and potential applications in a surprisingly wide range of modern industry.

These applications range from production materials in a variety of parts and assemblies to the packaging of finished products. They are practical because honeycomb structures have relatively little weight, good mechanical strength, unusual ability to isolate heat and vibrations, excellent absorption characteristics, variable degrees of flexibility or rigidity, and many other properties, the nature of which depends on the specific honeycomb material used in any given circumstances. Further, honeycomb materials are inexpensive.

Most honeycombs are of more or less conventional materials, processed so that they will serve new purposes. Plastics, for example, can become honeycomb materials if they are mixed with various "frothing agents" so that they will bubble or foam and become exceedingly porous as they are converted from liquids to solid form. Other honeycombs have been produced by using adhesives to bond strips of rubber, paper, aluminum foil, and many other materials, at regular intervals so that a simple stretching operation causes the material to assume desired structural configurations.

Since these are simple operations, one of the first questions to be answered prior to utilizing these materials is: Should we buy prefabricated honeycombs, or produce our own from raw materials?

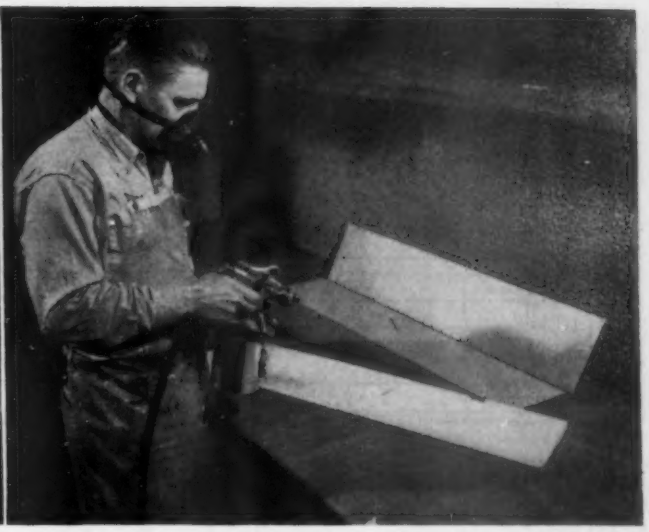
In many cases, of course, the answer to this question will depend on the quantity that may be required, since no company can process small quantities of materials as cheaply as the mass-production vendor who is set up for the job. However, it is not yet possible to buy prefabricated honeycombs of all materials or for every potential application.

Honeycombs with odd shapes and dimensions, for instance, must usually be made to order. This may be a job for subcontractors having specialized production facilities, but not necessarily.

Where it is possible to procure a material such as the foamable phenolic resin recently developed by Bakelite Company for packaging applications, honeycombs can be produced without any appreciable amount of special processing equipment—simply by mixing the raw materials, casting them in an inexpensive form, and curing them with low temperature heat.

Further, it is sometimes possible

Standardized honeycomb materials can frequently be adapted to specialized applications by cutting them to size and contour on an ordinary bandsaw.



Northrop Aircraft worker uses a spray gun to apply an adhesive coating to sheet metal plates which will be laminated to the honeycomb core in foreground.

to convert standard honeycomb materials for special purpose usage. For example, in the Northrop and North American aircraft plants, honeycomb cores for the lamination of airfoils and similar components with sheet metal facings are now being inexpensively produced by:

(1) Using templates as guides in bandsaw-cutting standard prefabricated honeycombs of various thicknesses to specified length and width dimensions;

(2) Assembling cut materials on tabletop fixtures so that they can be faired with a second saw in areas where the core components must be uniformly adhered to contoured sheet metal stampings.

Cores thus produced are usually covered with cheesecloth impregnated with a high strength adhesive such as Shell Chemical Company's Epon, to facilitate their assembly with facing materials. In addition to saving much of the time and material that would otherwise be required to fabricate internal truss structures for ailerons, elevators, doors, etc., this procedure is said to yield aircraft parts that are stronger, yet substantially lighter in weight, than conventional components of the same general types.

Quite frequently it is both feasible and practical to design or redesign a part so that prefabricated honeycombs can be used in its construction. For instance, where it is desirable to insulate a building structure with standard size blocks or slabs of a material like Dow Chemical Company's Styrofoam, it is a simple matter for an architect to specify wall, ceiling, and floor dimensions which will simplify construction problems without in the least impairing the quality of the structure as a whole.

Similarly, insulated panels for products like refrigerators can be economically manufactured simply by specifying panel thicknesses that will permit the use of standard prefabricated honeycomb materials between layers of metallic facing.

As a rule, rigid honeycombs are incorporated in laminates or "sandwich" structures as lightweight fillers, reinforcements, thermal or acoustical insulators, etc. Flexible honeycombs such as Great American Industries' Rubatex are extensively used in the manufacture of products like bicycle seat pads, inner soles for shoes, anti-squeak gaskets, dust barriers, floor mats, crash pads, and life preservers.

Few of the honeycomb materials now being produced are competitive in the sense that one may be used in place of another for any and all applications. No single rigid honeycomb, for example, can be used in the manufacture of all types of laminates, because differences in the compositions of various core and facing materials could cause rapid corrosion or prevent adequate bonding.

This may be regarded as something of a limitation, since it means that a buyer's selection of a honeycomb product must, in many cases, be based entirely on engineering considerations. But this is more than offset by the fact that honeycombs, as a class, can now serve many purposes better than comparable solid materials.

A fellow purchasing agent summarizes the situation by saying: "If you can manufacture a better product by replacing a solid material with a substance that is as much as 99% air, you can't go wrong—even if the new material costs a little more per pound."

Modern industrial use —this laminated aircraft part, made at North American Aviation, consists of a honeycomb core between two sheets of aluminum; it weighs only half as much as a comparable component made with internal truss structure, yet has greater strength.

A well equipped and competently staffed maintenance shop helps to insure dependable, low cost truck operation.

Daily Truck Report, filled out by the truck operator at the start of each shift, gives the maintenance department a close check on the major operating and safety features of each truck.

DAILY TRUCK REPORT

TRUCK NO. _____ DATE _____ SHIFT _____

OPERATOR _____ DEPARTMENT _____

Check	O.K.	Def.	Check	O.K.	Def.
Brakes			Seat Brake		
Horn			Tires		
Steering			Hoist		
Controller			Tilt		
Forks					

SIGNED _____

Preventive Maintenance for Industrial Trucks

By John A. Draxler, Manager, Service and Field Engineering, The Elwell-Parker Electric Co., Cleveland, Ohio

TODAY, as never before, preventive maintenance of industrial trucks is a vital consideration. The proper functioning of such equipment is necessary to produce on schedule, to minimize costs, and to effect maximum company-wide operational efficiency.

Present day production incentive systems may also place an undue strain on handling equipment. For example, the operator of an industrial truck, who is under some sort of an incentive system, may be inclined to overlook correct preventive maintenance regulations in favor of continued operation with accompanying incentive pay rather than stand-by pay.

The lack of an effective preventive maintenance system and/or the lack of a desire to keep equipment in top operating condition, can cause excessive down-time not only to the handling equipment itself, but can also cause the tieup of normal plant operations—a truly expensive and serious situation.

The purpose of this report is to set forth certain basic rules for establishing an effective, workable maintenance program. Of primary importance is the question of authority. The maintenance department must have sufficient authority to enforce the program. All too often a good maintenance system falls by the wayside because the production departments will not permit trucks to be pulled out of service for repairs. Although this is an understandable attitude it does not help to keep truck operating costs down.

There are two possible solutions to this problem: (1) Provide a standby truck which can be placed in service while inspection and repairs are made. (2) Permit the maintenance department to work a different shift than the production departments. Although either of these solutions cost money, many plants have found that the reduced truck maintenance has made up the differences many times over.

No matter what the make or type truck, certain standard preventive

maintenance regulations will apply. While this report was specifically prepared for operators of electric industrial trucks, it is obvious that many of the rules concern gas-powered trucks as well. But for any type truck, when in doubt, it is vital to consult with the representative of the manufacturer who sold the vehicle in question. In addition, handbooks are normally provided to cover maintenance information peculiar to a given vehicle.

Who Services Your Trucks?

Without the proper attitude, maintenance men can cause more harm than good. Our field men report three general attitudes. Perhaps you will recognize your maintenance men in one of these classifications:

1. First, there is the maintenance man who is afraid of the electric controls of a truck. He doesn't really understand the basic functions that govern the operation of electrical equipment; consequently, when something goes wrong, he "guesses" that changing this or that will end the trouble. Needless to say, it normally does nothing of the kind.

There is no need to be afraid of electrical equipment. It is simple to handle and simple to keep in perfect operating condition if the maintenance man will learn the few basic facts that are required and will then follow up his knowledge.

2. Second, there is the maintenance man who contemptuously regards hydraulics and electricity as too simple to require any thought on his part. He has always been able to fix anything with a hammer, a wrench, a screw driver and a piece of wire, and he feels that by the same token, he ought to be able to maintain a simple electric truck in the same way.

3. Third, there is the maintenance man who recognizes the electric controls system as a highly important contribution to the efficiency of modern machinery. Such a maintenance man knows that the operation of his truck is controlled by certain principles just as is true of any mechanical piece of equipment.

Obviously, it is of utmost importance to have the best trained and equipped personnel in charge of a truck maintenance program. Maintenance men must understand the great responsibility that rests within their hands and must be constantly reminded of the importance of their job. They must also be supplied with the latest information on effective truck maintenance and must be equipped with modern servicing equipment.

INSPECTION REPORT

Electric Platform Truck

Schedule A — **50 Hours or Weekly**

TRUCK NUMBER _____ MAKE _____ SERIAL NUMBER _____

DATE THIS REPORT _____ DATE LAST REPORT _____ INSPECTOR _____

ENGINE HOUR METER READING _____ DEPT. _____

TRUCK CAPACITY _____ SPECIAL ATTACHMENTS _____

No.	CHECK POINT	Okay	Defect	No.	CHECK POINT	Okay	Defect

REPAIR PARTS USED

Qty.	Description	Mfgr. Part No.	Cost	Total
			Total	

REMARKS: _____

INSPECTOR _____

A systematic procedure for inspection of trucks at regular intervals is essential to any preventive maintenance program.

Accurate accounting of operating costs is important. Reports such as this will help ferret out weak spots in the preventive maintenance program.

TRUCK REPAIR ORDER

DATE _____ TRUCK NO. _____ MAKE _____ SERIAL NO. _____

DEPT. _____ LAST PREVIOUS INSPECTION _____

DRIVER'S COMPLAINT _____

REPAIR INSTRUCTIONS _____

SIGNED _____ Supervisor

Parts and Material Used					Labor Required		
Part No.	Qty.	Description	Price	Cost	Date	Clock Number	Hours
			TOTAL			TOTAL	

REMARKS _____

JOB COMPLETED _____

INSPECTOR _____

SIGNATURE _____

PREVENTIVE MAINTENANCE CHECK LIST

Electric Industrial Trucks

SCHEDULE A
50 Hours Service or Weekly

GENERAL (for All Truck Types)

Check:
- Oil Level in Drive Axle
- Service Brake
- Parking Brake
- Steering for backlash or binding
- Warning Signal

Inspect:
- Frame, Skirts, etc., for damage
- Tires, for cracks and other defects
- Battery Receptacle

Lubricate

Road Test Truck

FORK TRUCKS

Check:
- Oil Level in Hydraulic Tank
- Hoist and Tilt Cylinders, for leakage
- Hydraulic Hose Fittings
- Pressure Gauge
- Pressure Adj. Switch
- Pressure Check Valve
- Forks, for damage

Test:
- Hydraulic Relief Valve
- Function of Attachments

LOW LIFT PLATFORM TRUCKS

Check:
- Trail Wheel Bearings, for lubrication & wear
- Oil Level in Hoist Mechanism

Inspect:
- Platform Lift Linkage
- Universal Joints

HIGH LIFT PLATFORM TRUCKS

Check:
- Trail Wheel Bearings, for lubrication & wear
- Oil Level in Hoist Mechanism

Inspect:
- Lift Chains
- Universal Joints

CRANES

Check:
- Oil Level in Boom, Hook & Slew Reduction Units
- Cable Drums

Inspect:
- All Cables
- Universal Joints
- Boom, for mechanical damage

Test Boom & Hook Limit Switches

SCHEDULE B
250 Hours Service or Monthly

Check:
- All points in Sched. A
- Oil in Brake Master Cylinder
- Clearance of Brake Shoes
- Oil Level in Steering Gear Housing
- Horn Button
- "Dead-man" Control Interlock
- Operation of No-plug
- All Motors, Brushes & Commutators
- Controllers & Contactors; Replace Tips as required

Service Batteries

Blow out with Dry Compressed Air:
- Controllers & Contactors
- Motors
- Resistance Boxes

Blow Dirt out of Truck with Compressed Air

Check:
- Hoist and Tilt Cylinders for excessive drift
- Chain Reeving
- Strainer in Hydraulic Line
- Master Controller, for speed sequence
- Uprights & Elevator Carriage, for strain or damage

Check:
- Operation of Controller Linkage
- Steering Linkage

Inspect Platform, for damage

Check:
- Steering Linkage
- Operation of Controller Linkage
- Lift Mechanism Brake Lining

Inspect Uprights & Elevator Carriage

Lubricate Lift Chain

Check:
- Steering Linkage
- Controller Linkage
- Boom & Hook Hoist Brake Lining

Inspect:
- Slewing Mechanism
- Boom & Hook Hoist Mechanism

Lubricate Cables

SCHEDULE C
1000 Hours Service or Every 4 Mos.

Check:
- Wheel Bearings; Repack
- Wheel Bearing Seals
- All Wiring for loose connections or grounds
- Resistor Grids

Adjust Steering Unit for minimum backlash

Wash and Touch Up Truck

Repair Bent or Damaged Skirts, Battery Compartment Doors, etc.

Drain and Refill Drive Housing

Check:
- Pump Operating Switch; Service
- Elevator, for excessive play
- Inner Uprights, for excessive play

Service Hydraulic Pump

Inspect and Lubricate Elevator and Upright Rollers

Drain, Flush, & Refill Hydraulic Tank

Clean & Service Control Valves

Check & Service Auxiliary Switches

Drain & Refill Lift Mechanism Housing

Check:
- Uprights, for excessive play
- Lift Chain Tension

Drain & Refill Hoist Mechanism Housing

Lubricate Uprights & Elevators

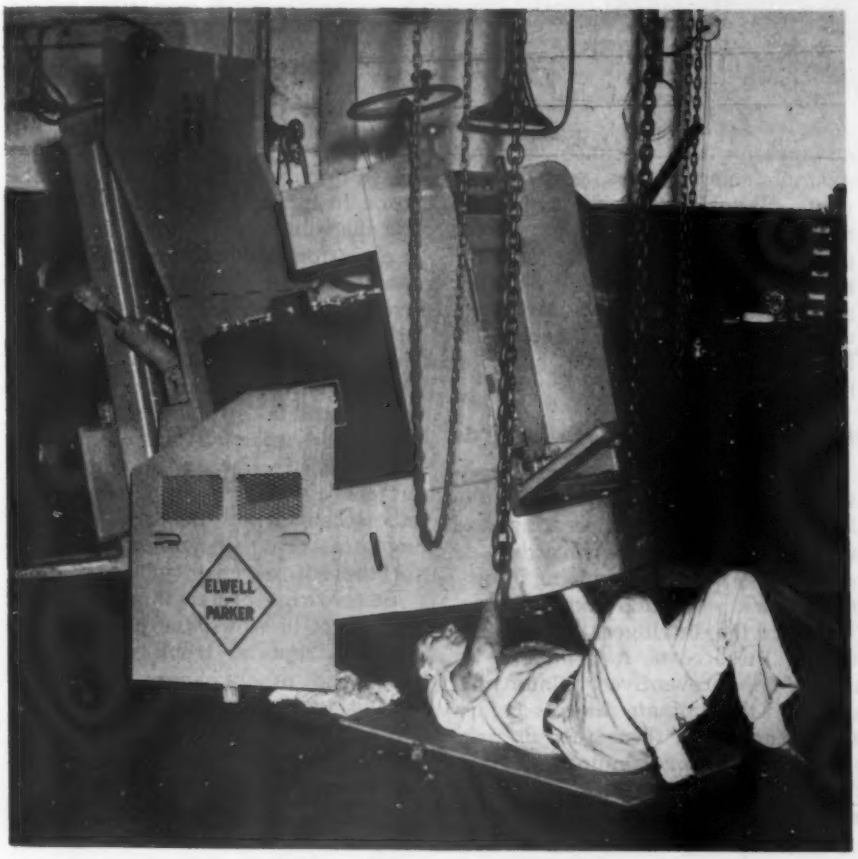
Replace Worn Cables

Drain & Refill:
- Slew Unit Housing
- Hook Hoist Housing
- Boom Hoist Housing

Inspect & Lubricate Slew Bull Gear Housing

Check Slew Unit Bearing Adjustment

A few minutes spent by the operator in checking his truck before starting work will pay dividends. Provide a simple form for his convenience in checking the important points.



An adequate battery charge shop is important for maximum battery life. Check with the battery manufacturer for proper servicing instructions.

One of the most important factors in the successful operation of industrial trucks is the use of properly selected lubricating oils and greases and a regularly scheduled lubricating interval. If the truck is of the hydraulic lift type, the selection of the proper hydraulic oil is also of vital importance. It is also important to establish a regular inspection and adjustment schedule. Such a program will normally catch a minor equipment breakdown before it develops into a major failure that is costly to repair. A suggested list of inspection points is given elsewhere in this article.

The frequency or interval of inspection and adjustment are governed by many factors, including: the general conditions of the floors or roadways over which the trucks operate; the size and type of loads; the conditions of the atmosphere, whether dusty, damp, hot or cold; the nature of the service cycle, whether it consists of long runs or short turns with an abnormal amount of jockeying; the actual hours a day in which the truck is in service; the relationship of the location of the service center to the truck operating and storage area; the type of operator and whether the truck is assigned to one operator only or used by several; the maintenance facilities available.

Since these and other related factors are known and controlled by the operating and maintenance departments of a company, it seems logical to assume than any effective preventive program must be worked out with the direct cooperation of responsible parties in these departments.

Principal Causes of Breakdown

Here are a few of the principal general causes of equipment failure and breakdown.

1. Neglect of minor repairs and inspection
2. Faulty lubrication
3. Overloading
4. Bad floor and/or roadway conditions
5. Careless operation by inexperienced or irresponsible operators.

The neglect of minor repairs and faulty lubrication may be largely corrected by periodic inspection, and others by proper supervision and foresight. Overloading can be and must be prevented by constant supervision because such practices may cause a truck to "let go" without warning, causing severe damage to equipment and loads and even severe injury to personnel.

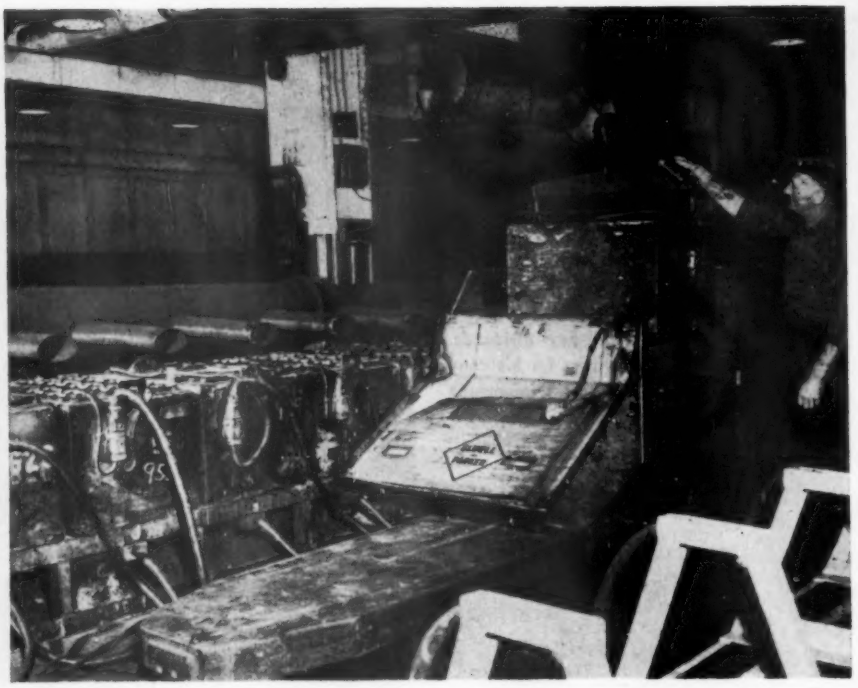
It is important that roadways and floors be kept clean and in good repair, free from oil or grease, especially at aisle intersections where several trucks may be passing repeatedly. Uneven floors and roadways can and do cause serious damage to truck and load, not to mention danger of dislocated materials falling to the floor or injury to personnel.

Careless and irresponsible operators can easily cause more damage to a truck, its load, and surrounding property than is usually known. Drivers should be properly educated in the correct way to operate an industrial truck and should be given a regular course of instruction before they start on the job.

Operators should be trained to report the following factors to the foreman or supervisor. These are usually the danger signs which if caught in time can save costly repairs.

1. Decrease in normal speed
2. Lack of power
3. Apparent lack of proper lubrication
4. Worn or damaged tires
5. Poor brakes
6. Missing parts, such as hub caps, covers or the like
7. Worn or partly broken wire ropes or chains, broken or bent operating rods, etc.
8. Difficult steering

It is not, of course, good policy to depend altogether on the operator to call attention to major or even minor items which have a bearing on preventive maintenance. A better plan is to schedule regular periods for inspection and lubrication, the time interval depending on the class of work done by the truck as well as on working conditions. The outline of such a maintenance schedule is included elsewhere with this article; may be altered by existing conditions.



Minor difficulties should be corrected immediately. Delay leads only to more serious damage and bigger repair bills.

Order expendable repair parts in advance of their actual need—for example, contact tips, tires, lubricants, oil seals, brake linings, small switches, packing and other known parts which surely will be required sooner or later. There will be other parts of like nature which a maintenance foreman or storekeeper will learn through experience may best be required periodically.

Importance of Accurate Records

A vital part of any effective preventive maintenance system is the keeping of accurate operating and repair costs since such records play an important role in reducing industrial truck operation expenditures. Through the intelligent interpretation of these costs, it is possible to adjust the preventive maintenance program to eliminate failures before they occur. And these records may indicate a better training program for operators, changes in the materials handling program to eliminate overloading or other bad practices.

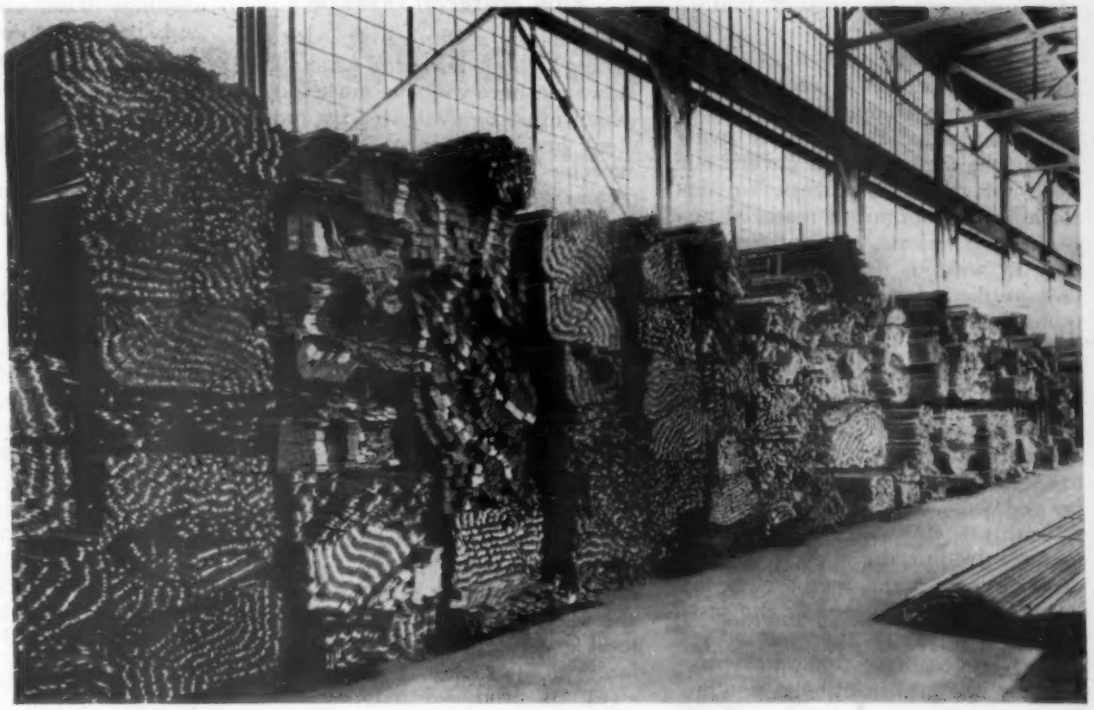
Regardless of how helpful good maintenance records may be, there still remains the problem of how best to obtain the information without excessive, costly paper work. A little planning plus cooperation of the maintenance men who do the job will go far toward implementing such a system. A form should be provided similar to the sample shown. The mechanics of the form will vary with each company, but it should contain certain basic information — truck identification; space for the maintenance supervisor to indicate repair instructions for the maintenance man to follow; a place for the mechanic to indicate quantity and description of parts used; space for labor charges, and provisions for the signature of either the mechanic or supervisor so that responsibility for the work can be determined if a problem should subsequently arise. Provision should also be made so that the supervisor or his clerk can enter parts and labor costs on the sheet and by adding these come up with a total cost for the entire repair job.

Some firms prefer to maintain a file jacket in which the periodic inspection reports, truck repair orders, and other papers pertaining to the truck are kept. At certain established intervals, often when the 1000-hour inspection is made, this file is carefully studied to determine if any special action should be taken.

Other plants prefer to post the cost figures from the inspection reports, and truck repair orders to a ledger sheet and present this information to management in a monthly or quarterly report.

Either method serves as a careful check on operating costs, bringing to light those which are most frequent and costly, and aiding in determining the most effective solution.

Production rates determine proper inventory levels



Standards for Inventory Control

By G. N. Hackett, Director of Purchases, Thompson Products, Inc., Cleveland, Ohio

Paper presented at the Fourth National Standardization Conference, American Standards Association, New York, October 19, 1953.

STANDARDS can be applied to various phases of business operations. At Thompson Products, we apply standards to the control of investment in inventory.

Inventory control is an important part of business management, for a large part of available working capital is always tied up in raw material, operating supplies, work in process, and finished goods. We believe that we can determine the amount of money we must invest in these inventories, using the methods that we have devised for setting inventory standards.

We try to set our standards so that they:

1. Are practicable and workable.
2. Are realistic and provide a basis for measurement of performance.
3. Do not interfere with good manufacturing, production or procurement practices.
4. Define the investment in inventories necessary to the successful conduct of our business.
5. Relate inventories on hand to future needs, and not to past usage.

Our program is set in a manner that makes it applicable to all segments of our business, and can be utilized by each of our operating divisions. We establish standards for raw material, supplies, work in process, and finished goods. We use information contained in our regular production and accounting records. We prepare inventory performance reports which are reviewed by the managers of our operating divisions and by top management.

Following is a brief outline of how we do this.

Work-in-process inventory standards are set up for each of our pro-

duction lines. It is relatively easy to determine the amounts of material, in terms of pieces and dollar value, that are necessary to maintain continuous production at any level of activity. Most of the factors considered in setting these standards can be treated mathematically.

We make detailed studies of our production and cost records, and carefully observe our actual production operations. By properly evaluating the factors which govern our need for parts in process, we determine the amount of material necessary to sustain efficient production at various levels of activity. Our studies show there is a minimum amount of inventory which must be in the line even when the rate of production is small.

As the rate of production increases, additional inventory must be added to guard against delays caused by tool changes, machine breakdown, and other production difficulties. However, the additional amount required is not directly proportional to the increase in the production rate, so that as the production rate rises the amount of material necessary to support production becomes relatively smaller. For example, if we require 25,000 pieces in process to support a production rate of 25,000 finished pieces per month, we will probably require only 75,000 pieces in process when the production rate is 100,000 pieces per month. At the rate of 25,000 finished pieces per month, the ratio of in-process to finished parts is one to one; but at the rate of 100,000 pieces per month, the ratio is 0.75 to one.

We find that additional in-process material is required until we reach full two-shift production. The addition of a third shift will not require any increase in work-in-process.

By determining the amount of in-process material required at various rates of production, we develop the ratio that should exist between the number of parts completed each month and the number of parts required in-process.

Applying this ratio to our scheduled rate of production, we determine the number of pieces that should be in process. This is our in-process standard. Since we have established a relationship or ratio between the production rate and parts in-process, we can determine an in-process standard for any rate of production. These standards are set by our Industrial Engineers and must be approved by the Staff Director of Industrial Engineering.

The production department keeps our work-in-process in balance with our production of finished parts by the use of these standards, and controls the amount of our working captial which is tied up in inventory.

Raw Material Inventory

We follow a similar procedure in setting raw material standards. However, here we have more factors which must be evaluated by judgement and experience. We cannot exercise as direct control over the factors governing our need of raw material inventory as we can when considering our needs for material in-process.

An outline of these governing factors will be helpful in understanding our method of arriving at a raw material standard. These are not listed in the order of their importance, but rather in the sequence in which we review them.

1. *Material Availability.*

Under this heading we consider:

(a) The number of qualified sources of supply.

(b) Is material in stock or regular production at the supplier's plant or is it produced only to order?

(c) If produced only to order, what is the length of time required to produce it?

(d) Does the material which we require conform to usual industry standards of chemical analysis and physical requirements?

(e) Are the sizes and shapes which we require produced in frequent or infrequent cycles?

(f) Can we expect suppliers to make shipments on schedule?

(g) Is supplier's production subject to seasonal variations?

2. *Customer Requirements.*

Here we consider:

(a) Customer ordering practices. Do they give us consistent advance schedules, or do they order periodically and in widely varying quantities?

(b) Are we their primary or sole source of supply?

(c) Are the customer's material requirements stable or subject to sudden change?

3. *Our Manufacturing Practices and Requirements.*

(a) Do we have sufficient volume to warrant multiple sources of supply?

(b) De we combine future requirements for more economical production?

(c) What portion of our requirements are for less than minimum mill quantities?

Inventory standards are set for each of the manufacturing divisions, and the standards reflect their specific needs. Each division's raw material inventory is broken down into classifications which include only related materials. We do not group steel bars and grey iron castings under one inventory heading, because the evaluation of the factors which determine the amount of inventory which we must have is not the same.

We require aluminum in the form of ingots, bars, sheets, strip, and castings. It's all aluminum, but, from the standpoint of inventory standards, the effects of the governing factors are different. Our standard on aluminum ingots might be 18 days, and our standard on aluminum castings 35 days. In arriving at these two totally different standards, we follow the same line of reasoning, recognize the effect of the same controlling factors, and perform the same kind of computations, but come up with different answers.

For example, material availability, which is one of the prime factors in our procedure for setting standards, is widely different between ingots and castings. There are many producers of ingot, for we can buy from either primary or secondary producers, while the casting can only be obtained from a supplier who has the necessary mold or pattern equipment. Standard grades of ingot are usually in the smelter's stock, but castings are produced to order. Ingots as received are ready for our melting furnaces, while castings are subject to detailed inspection before they can go into process.

The standards which we use are established through an appraisal of these factors by representatives of the operating divisions. Our Purchasing Agent and members of the production department make the appraisal and recommend the number of days' supply which should be carried in inventory. This recommendation is referred to the Director of Purchases for his approval, and, when approved, becomes the standard.

Time, Quantity, Dollars

Standards as set at this point are expressed in terms of days' supply, because the result of our appraisal of the factors for setting standards is most readily expressed as an element of time.

The expression "days supply" means the number of calendar days we should be able to operate at our

(*Please turn to page* 284)

An Identification Numbering System for Purchased Materials

By Philip J. Callan, Materials Standards Department, Eastman Kodak Company, Rochester, N.Y.

Paper presented at the Fourth National Standardization Conference, American Standards Association, New York, October 20, 1953

THE AUTHOR is a graduate of Cornell University in mechanical engineering, and has been associated with Eastman Kodak Company since 1927 in various engineering aspects of the company's operations, including service as project engineer and superintendent of engineering and maintenance at the Holston Ordnance Works in 1942-1945. Since 1946 he has been head of the company's Materials Standards Department, at the Kodak Park Works.

FROM what I have been able to learn about numbering systems for identifying items of material, all have one thing in common—that is, they are all different from one another. They differ because the purposes for which they were designed are different.

It seems appropriate, therefore, to begin the explanation of the code being used in Eastman Kodak Company by outlining some of the features that we wanted to incorporate to facilitate the operation of our system.

In the first place, the numbers apply only to items of *purchased materials*—either raw materials for production, such as sheet and strip metals, chemicals, plastics, etc.; or finished items for maintenance and supply, such as structural steel, hardware, piping, lubricants, electrical items, laboratory supplies, etc. Many of these are stocked by the Stores Department. The code does not include, or have anything to do with production parts, parts in process, products for sale, capital assets, or the like.

About four years ago we decided to overhaul the numbering system, or rather *systems*, then in use in our Standards Catalog and Stores Department. The Standards Catalog contained about 30,000 approved items, and was using a 7-digit numeric code. The Stores system, containing about 50,000 items, was using an alpha-numeric system varying from 5 to 7 letters and digits.

Each of these systems was reasonably satisfactory for the specific purpose intended, but the dual system was a disadvantage. Furthermore, neither system was particularly well adapted to the punch card system of stock control which was being given serious consideration at the time. We therefore decided to develop a single new system which would meet the main requirements of all phases of the purchased materials control problem.

Basic Objectives

The following points were laid down as objectives to be met by the new system. It will be immediately obvious that certain ultimate compromises were necessary, because no single solution could completely satisfy all the requirements. They are all included, however, to show the scope and complexity of the problem.

1. All numbers should be significant. This might require from 15 to 20 digits in many cases, such as for cutting tools, antifriction bearings, etc. Nevertheless, we also wanted the number to be as short as possible to reduce clerical effort, copying errors, etc.; a limit, say, of 5 or 6 digits.

2. The number should have a variable length, similar to the Dewey decimal system, to permit unlimited expansion for new items. On the other hand, we knew that the num-

TABLE I

Summary of Materials Classification System

Classes	Kind of Item
00 to 15	RAW AND SEMI-PROCESSED MATERIALS Hides, Coal, Lumber, Metals, etc.
16 to 39	MECHANICAL PRODUCTS Hardware, Mill Supplies, Cutting Tools, etc.
40 to 49	MECHANICAL EQUIPMENT Materials Handling, Power Transmission, Construction Equipment, etc.
50 to 57	ELECTRICAL PRODUCTS AND EQUIPMENT Motors, Controls, Wiring, Electronics, etc.
58 to 61	CHEMICAL AND PROCESSING EQUIPMENT Tanks, Pumps, Mixers, Packaging Machines, etc.
62 to 79	CHEMICAL AND ALLIED PRODUCTS Chemicals, Plastics, Paints, Lubricants, etc.
80 to 93	LABORATORY AND OFFICE EQUIPMENT Instruments, Laboratory Supplies, Office Equipment, etc.

ber should have a fixed length to permit use in a punched card stock control system.

3. All items, when sorted in numerical sequence by a punch card system, should group like items together to facilitate inventory control, and the take-off of items for requisitions and purchase orders. In other words, all items carrying group discounts, or those which could be considered for purchase at one time or from one source, should be grouped together.

Other considerations indicated that the items, when sorted in the same manner, should arrange themselves in alphabetical order to facilitate look-up in the Stores records. That is, the system should arrange all items in alphabetical order so that any item could be located readily by name.

4. The system should be able to absorb new items readily, without upsetting any established numbers or a sequence of numbers. This, of course, is a major problem, and one which is usually a big factor in the breakdown of established systems having significant numbers.

5. A number once assigned should never be changed. However, we knew that this would be theoretically impossible, considering the other limitations, and felt that the best we could do would be to develop some system to keep changes to an absolute minimum.

6. The system should be designed to handle about 100,000 items, with expansion to perhaps 200,000.

I have not included a number of other factors of a more minor or local nature, but which also contributed their share of problems.

10-Digit System

Our solution was a 10-digit all-numeric number. I would like to show first how it meets the outlined requirements, and then how an item is coded and the system maintained.

The number is composed of three groups of digits—three, four, and three, respectively.

Letters are not used because they are more difficult to handle on punched card systems. The hyphens serve to break the number up into easily handled groups of digits.

Our experience with the two former systems indicated that 6 or 7 digits was the minimum that could be used. Extending this to 10 increased the flexibility several hundred-fold, and we knew by experience that we would need it. The extra time required to handle the longer number in writing requisitions and in key-punching and sorting punched cards is not as large a factor as it might appear. On the basis of 5,000 transactions per day, it only amounts to an estimated total of 8 man-hours per day. This is a small price to pay for the other features which the longer number provides. We have found also, that it has not increased significantly the number of clerical errors.

The 10-digit number, then, provides a working compromise between the shortest number desirable for clerical purposes and the longest number that would be required for complete significance and flexibility.

TABLE II

First two digits of identification number show CLASS of item, as assigned in Table I

Mechanical Products	
16X-XXXX-XXX	Hardware
17X-XXXX-XXX	Mill Supplies
18X-XXXX-XXX	Hand Tools
19X-XXXX-XXX	Machine Tools
20X-XXXX-XXX	Cutting Tools
21X-XXXX-XXX	Abrasive & Misc. Tools
23X-XXXX-XXX	Bolts & Nuts
24X-XXXX-XXX	Screws
etc.	

TABLE III

Third digit indicates sub-classification showing KIND of item within each Class

Cutting Tools	
200-XXXX-XXX	Drills, Reamers, etc.
201-XXXX-XXX	Milling Cutters, Gear Hobs, etc.
202-XXXX-XXX	Single Point Cutting Tools
203-XXXX-XXX	Saws
204-XXXX-XXX	Taps & Dies
205 to 209	Unassigned

TABLE IV

Fourth and fifth digits cover alphabetic listing of items within each Sub-Class

Sub-Class 200—Drills, Reamers, etc.	
200-10XX-XXX	Augurs
200-20XX-XXX	Bits
200-30XX-XXX	Counterbores
200-40XX-XXX	Countersinks
200-50XX-XXX	Drills
200-60XX-XXX	Extractors
200-80XX-XXX	Reamers

Material Classification

In order to satisfy the requirements for inventory control and to facilitate the grouping of related items on purchase requisitions and orders, etc., the number was tied in to a materials classification system. All materials were divided into 100 basic classifications, and the number assigned to any class became the first two digits of the number as-

TABLE V

Sixth and seventh digits show TYPE of item within alphabetic listing of each kind

Reamers

200-8005-XXX	Reamer, bridge, taper
200-8030-XXX	Reamer, chucking, fluted
200-8035-XXX	Reamer, chucking, rose
200-8060-XXX	Reamer, hand
200-8062-XXX	Reamer, hand, expansion
200-8070-XXX	Reamer, pin, taper, helical
200-8075-XXX	Reamer, pin, taper, straight
200-8085-XXX	Reamer, shell, spiral
200-8088-XXX	Reamer, shell, straight

TABLE VI

Eighth and ninth digits indicate SIZE of item within each listed type

200-8060-10X	Reamer, hand, 1/8
200-8060-12X	Reamer, hand, 9/64
200-8060-14X	Reamer, hand, 5/32
200-8060-16X	Reamer, hand, 11/64
200-8060-18X	Reamer, hand, 3/16
200-8060-20X	Reamer, hand, 13/64

(Tenth digit assigned to Minor Variables)

signed to every individual item in that class.

All items can be classified into rather broad categories of materials arranged in a rather logical progression of kinds, beginning with Raw and Semi-Processed Materials, and following through Mechanical, Electrical, Chemical, and Miscellaneous finished items. We assigned class numbers 0 to 15 to raw and semi-processed materials, which include such items as hides, coal, lumber, metals, etc.; class numbers 16 to 39 to mechanical products, which include hardware, mill supplies, cutting tools, etc.; and so on up to classes 94 to 99 for miscellaneous, including protective clothing, safety items, etc.

Table II shows part of the section covering Mechanical Products, in more detail. Here again is a logical progression of kinds of mechanical items beginning with Hardware, and progressing through Mill Supplies, Hand Tools, Machine Tools, Cutting Tools, etc. Note that closely related items such as hardware and mill supplies are next to each other in the series; similarly, mill supplies and hand tools, hand tools and machine tools, etc.

The classification is based primarily on considerations of the procurement problem, that is, on where the items are most likely to be found in the selling outlets. For example, we would classify a small pulley as "hardware" if it were found to be generally listed in hardware catalogs and carried by jobbers who specialize in hardware items. On the other hand, if the pulley were of a type which was generally found only in catalogs covering materials handling items, and carried by distribution outlets which specialized in materials handling equipment, we would classify it with the latter.

We have found a fortunate similarity between the classification of similar items by end use, by issuance from stock, by stockroom location requirements, by purchase requirements, and by availability in vendors' outlets. For example, the variety of items we call "Hardware", consisting of locks, latches, hinges, knobs, door closers, hooks, brackets, etc., are most likely to be listed on the same bill of material installed by the same group of mechanics, and kept in one place in the stockroom for their convenience. It is also most likely that there will be certain vendors who specialize in selling these items, and that they should be considered at one time in placing orders for stock replenishment. Thus, to put them all in the same class solves many problems simultaneously. (I will not dwell on the questions which frequently arise when related items do not naturally fall into one specific class, but where various factors point to different classes.)

Once an item is classified, however, the class number becomes the first two digits of the 10-digit item number. For example, every number assigned to a hardware item would begin with the digits 1-6.

Sub-Classes and Kinds

Each class is further subdivided into 10 sub-classes. For example, take Class 20, covering "Cutting Tools". This class can be conveniently subdivided into "kinds" of cutting tools, and the same factors and reasoning which apply to the classes themselves apply to the subclasses.

In sub-class 200, for example, we have gathered together the drills, reamers, counterbores, etc., which, in general, are made by the same manufacturers, and are used in the same type of operations and on the same machines. Saws, on the other hand, are made by other manufacturers and are used in other operations on other machines. These have been placed in another sub-class—203.

This third or sub-class digit also becomes a part of the 10-digit item number. Up to this point, therefore, a numerical sort will automatically group all similar items together. This is as far as we go, however, to satisfy the requirements for classification. We have not found it feasible to carry the principle beyond this point for two reasons: First, it becomes too difficult to make decisions because differences become less well defined; and second, because it is too difficult to locate a given item in the records system.

Beyond this point, therefore, we have favored the other initial requirement which calls for numbers to be assigned in such a manner that the items, when sorted numerically, will arrange themselves in alphabetic order.

Taking sub-class 200 again as an example, we have arranged all the "kinds" of items alphabetically, as shown in Table IV—Augurs, Bits, Counterbores, Countersinks, Drills, Extractors, and Reamers. This sequence can be maintained by assign-

TABLE VII

Number Assignment Patterns Are Variable

Reamers	200 – KKTT – SSM
Wire Cloth	172 – KTTS – SSM
Steel Strip	011 – TTTS – SSS
Machine Screws	25T – TSSS – MMM

Digits "K" are assigned to Kinds
Digits "T" are assigned to Types
Digits "S" are assigned to Sizes
Digits "M" are assigned to Minor Variables

ing significant numbers to each such kind. These numbers are shown (as 10, 20, 30, etc.) in the 4th and 5th digits of the item number. It is obvious from the table that we have used less than one-tenth of all the available numbers at this point, and that we could absorb about 10 times as many new kinds before getting into difficulty with the code and sequence, a condition not likely to be encountered in the foreseeable future.

Types and Sizes

Now carrying this process one step further, we can examine the various "types" of each "kind". Take reamers, for example. Up to this point, class, sub-class, and kind are indicated by the first five digits of the identification number:

200—80XX—XX

All the different types of reamers have been arranged alphabetically, and numbers assigned in the 6th and 7th digits, as shown in Table V. Again we have a system which could absorb 10 times as many new types as we have listed.

"Size" is probably the next most important consideration. Each type of item can be arranged according to size by assigning appropriate numbers in the 8th and 9th digits, as shown in Table VI.

This leaves the 10th digit free to assign to "minor variations", such as the type of steel (carbon or high speed), special tolerances that might be required, or some new variant that might come up.

A Variable Pattern

You may be wondering by this time how we could possibly fit all kinds of materials into this same pattern. Actually we can't, but it is not necessary to do so. We vary the pattern to fit the conditions.

Table VII shows how this has been done in several specific instances. The first line of this table shows a summary of the number assignment pattern which we have been following on Reamers, as described. In this tabulation we have used the letter K to show the digits assigned to the various "kinds"; the letter T for the digits assigned to the various "types" of the same kind; the letter S for the digits assigned to the various "sizes" of the same type; and the letter M for the digit assigned to the "minor variables" for each size.

Before proceeding to the next line, I would like to repeat the principle that the system should be expansible in the ratio of about 10 to 1 at any point; i.e., we should be able to add 10 times as many kinds, or 10 times as many types, or 10 times as many sizes, and even 10 times as many other variations. Thus we can expand at any point without disturbing neighborhood items to which numbers may have already been assigned.

Reviewing the first line again, you will recall that there were only seven kinds of items in sub-class 200, which covered Reamers; i.e., Augurs, Bits, Counterbores, Countersinks, Drills, Extractors, and Reamers (See Table IV). Therefore, although one digit could have taken care of them, we assigned two digits, shown here as K. Thus we have made an allowance for expansion up to 100 kinds, or somewhat over 10 times the original number, and the assigned numbers are so spaced that additions can be made without disturbing the alphabetical sequence.

Again (See Table V), there were only nine types of reamers listed, but we have allowed for the same 10 to 1 expansion by assigning two digits, shown here as T.

Now look at the second line in Table VII, which shows the pattern for another class of item. Wire Cloth was the only "kind" in this sub-class, so we assigned only one digit (K) to handle it. This also provides a ratio of 10 to 1. We had only three or four types, so we established two digits (T) for the types. Wire Cloth, however, comes in a very great number of sizes, considering the combinations of mesh and wire diameters, so we assigned three digits (S) for size.

Steel strip, on the other hand, is so important to us that we have put it in a sub-class—011—all by itself, and there can be no other knid. However, there are a considerable number of alloys, and an almost unlimited number of possible size combinations. Consequently, we have assigned three digits to the alloys (types) and four digits to the sizes. No digits for minor variations are required in this case because all such variations are taken into consideration in our company specifications, which, incidentally, have been incorporated as significant numbers in the digits devoted to "types".

The last line in this table covers Machine Screws. These are so numerous that we devoted a whole class—25—to them; there is no sub-class. Two digits cover the head types nicely, and three digits cover the sizes. On the other hand, we found so many variables of metals, alloys, finishes, thread fits, etc., that we allowed three digits (M) to handle them.

We maintain a code book in which the code pattern for each sub-class is recorded. In many instances we also develop and record a size pattern which can be readily applied to new items as they come into the system. This is particularly helpful for such standardized items as metal shapes, screws, pipe fittings, cutting tools, grinding wheels, bearings, commutator brushes, incandescent lamps, etc.

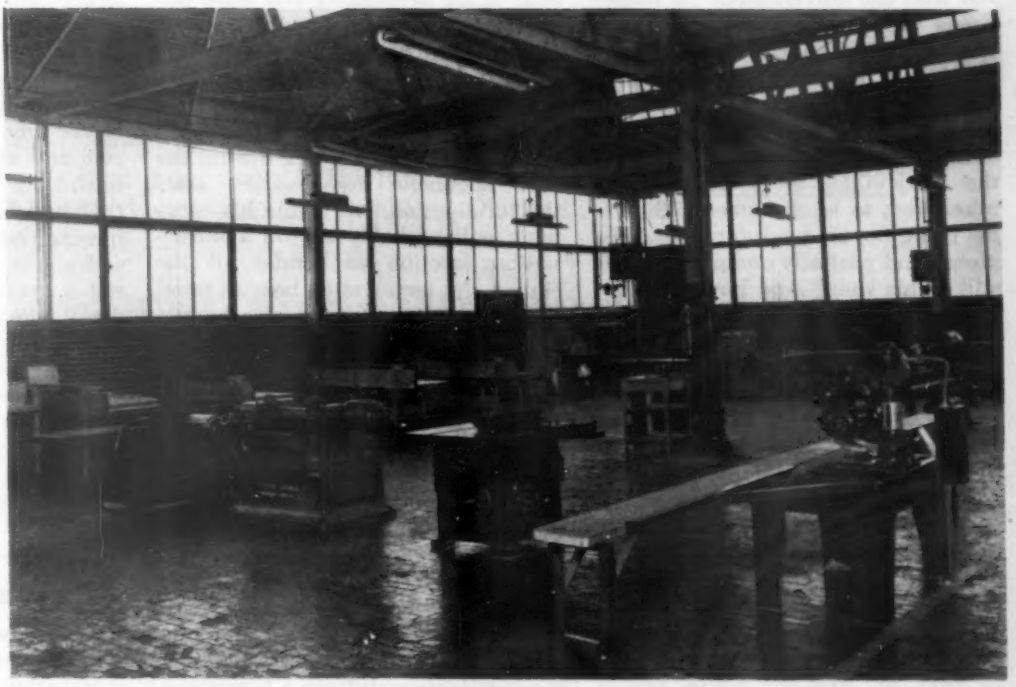
I would be naive to presume that I have made the development of this code appear simple, but if I have, I would like to dispel any such notion. It has required a great deal of planning and research on each kind of item, and we have been hard pressed on many occasions to develop a satisfactory pattern which will meet our basic principles. We have had to develop a number of "gimmicks" now and then, but have always ended up with something workable.

On the other hand, the system is only expected to handle about 100,000 items, and the theoretical numbers available in a 10-digit code are 10 billion, so that with proper planning there should be enough numbers to go around.

The P. A. is the vendor's point of contact

Preparing for Terminations

By Robert J. Flynn



The small vendor has a serious problem when his plant is suddenly made idle by an unexpected contract termination.

MOST buyers working under Government contracts, having been subjected to volumes of procurement regulations from the various Government agencies, unexpected visits and surveys by Government personnel, and sharp letters of criticism wherever the slightest detail was overlooked, have by now learned to turn out even the most complicated order with a minimum of difficulty. But turning them out is one thing—closing them out is another.

Because the accent has been solely on buying over the past few years, few companies have had either the time or the inclination to examine the problems surrounding the termination of subcontracts or purchase orders when the prime contract is cancelled. With the curtailment and leveling off of Government procurement, it is time for every purchasing department to prepare itself for the inevitable day when the number of prime contracts starts to decline.

There is rarely any forewarning that the Government no longer has any need for any particular end item; the buyer's first notice that anything is afoot usually comes by way of a call or memo from the Sales Department stating that a particular prime has been either reduced or cancelled in its entirety. Along with the memo comes a copy of the form telegram used by the Services telling the prime to stop all work, cancel all subcontracts and purchase orders, make no further commitments, and await further instructions.

So, while awaiting further instructions, the buyer sends out a similar telegram to all his vendors under the particular contract, advising them to stop work and cancel all orders for material. Then the form letter of instructions arrives and orders the prime contractor, among other things, to settle with all subcontractors as soon as possible. This too, in paraphrased form, is sent on to the vendors. And the fun begins.

The Vendor's Problems

To begin with, the moment the telegram arrives at the office of each vendor, each company president

makes immediate mental arrangements to fire his production manager for falling down on the job. But while doing this mental lynching, he also is dialing the buyer's number to ask him if this is the proper kind of gratitude for all the times he had the shop work overtime to get the job out on time. He will want to make an appointment to see "if this thing can't be straightened out" and will promise to get a new production manager if he can be allowed to finish the job.

When it is finally made clear to him that it was not the fault of his production manager, his plant, or himself, but the sole economic reason that the Government no longer needs the end item for which he was producing parts, and has decreed that no more will be accepted or paid for, his pleading attitude immediately disappears. If there's nothing he can do about continuing the work then there is only one other item to be discussed. When is he going to be paid for the completed and partially completed parts still in his shop? And how much?

These are good questions—questions to which every buyer should know the answers. And while it will be impossible to give each and every vendor a complete interpretation of Section VIII of the Armed Services Procurement Regulations, there are a few salient facts which must be brought to the vendor's attention as soon as possible.

First of all, the vendor will have to fill out the Termination Settlement Proposal Forms and Inventory Forms (DD543-548) before he can be paid off. And the buyer should bear in mind that all Settlement Claims by vendors in excess of $1,000 will have to be ratified by the Contracting Officer, and all claims in excess of $25,000 are subject to audit by the Government Procuring Agency.

Forms Are Required

Thus, it should be made clear that nothing can be done before the Settlement and Inventory Forms are sent in, no matter how small the claim may be. The buyer should suggest that the vendor have his accountant procure a copy of Section VIII of the ASPR and a couple dozen copies of the Termination Forms. The Government Agency involved will undoubtedly want at least five copies of all Settlement Proposals and Inventory Forms, and the Prime Contractor will need at least two, so the vendor should be instructed to fill out and submit at least seven copies of all forms to the Prime in order to bring about the fastest processing of the claim.

Next, it should be made clear to the vendor that he will be paid in full for all items delivered prior to the termination and that he will be paid the purchase order price for all completed items still at his plant.

When it comes to incomplete items, however, the buyer must watch his step. It is safe to say that the vendor will be paid for all normal expenses in producing the incomplete parts, including expenses for settling his claim, plus a reasonable profit and let it go at that. Beyond that, the buyer may be trespassing on the terrain of his accounting and legal departments and, until company and Government Agency policy are clarified, it is best to be as general as possible.

While the buyer might get away with a few generalities during the first telephone conversation after the termination, and while his company will probably set up a terminations section to handle all the claims, the buyer must bear in mind that at the moment he may be the only person in his company known to the vendor. He must remember that every time the vendor thinks that things are not progressing satisfactorily or wants a direct answer to a particular problem, he will call the person with whom he has built up a sound relationship over the preceding months or years. As a result, the buyer must be able to discuss the vendor's problems with him in some detail. And the one thing he must brace himself for is the inevitable visit from a thoroughly confused vendor with a mass of Inventory blanks in his hand.

Accounting for Inventory

In order to meet this onslaught and convince the vendor that, even though he is to be eventually turned over to a member of the Terminations Section, the Forms are not as deadly as they look, the buyer should spend some time going over the forms, acquainting himself with the requirements of each, and should take up any questions he may have with the Terminations Section. If his company has not set up such a section, his next best bet is to arrange a meeting between himself and the accounting and inventory personnel involved.

The Forms cover the usual inventory items of tools, raw materials, completed parts and incompleted parts. There is also an accounting form which outlines the procedures normally followed by the vendor and requires replies to a large number of questions, the answers to which will give the company or Government auditor a clear picture of how the vendor's prices were computed. In this regard, if time allows, it would be well for the buyer to prepare a sample case involving all types of possible inventory and, together with his inventory and accounting colleagues, to fill out a set of forms. This is merely the application of "learning by doing".

There is no doubt that one glimpse of the mass of fine print on the back of each form is enough to take the heart out of anyone courageous enough to try to read them through. And, while it may only take a half-hour to read them, the matter is not easily retained. Furthermore, the buyer who himself has filled out a complete set, is fully capable of demonstrating to the confused vendor that had he concentrated instead of fuming, he would have saved himself a trip. In short, though requiring a great amount of attention to detail, the rules to be followed are relatively simple, once learned.

Having learned how the vendor should account for the material and parts on hand, the next step is to acquaint oneself with the items which will go towards arriving at the final settlement figure with the vendor.

Allowable Expenses

Generally, all the usual items of overhead expense are fully allowable under terminations except the customary subjects of Governmental disallowance such as interest, non-institutional advertising, extraordinary travel expenses and entertainment. In addition, certain unusual expenses are allowable.

The first of these are the costs of the termination itself. These are generally special accounting fees, legal fees where the vendor required legal assistance in learning about the termination regulations, the cost of purchasing the forms and the costs of preparing them. It should be noted that if any of these items are covered by salaries which would normally be contained in the computation of the overhead, the vendor is not entitled to collect for them once in overhead and again as a direct charge to the termination. It must be remembered that all duplication of expenses must be avoided.

The second unusual expense which is allowed is the cost of producing

(*Please turn to page 278*)

The Pulse of Business

JANUARY, 1954

PURCHASING'S
Summary of economic conditions

Prospects for '54 are fair to good according to the most vocal of the forecasters - professional and otherwise. That still leaves a goodly number who haven't aired their views publicly, but are somewhat gloomier in private. At a quick glance, it seems the bigger fellows - the manufacturers - fall into the first group. The little fellows - retailers, distributors etc. - are in the more pessimistic camp.

The brighter outlook has some very solid supporters. Sentiment at the recent National Association of Manufacturers' annual meeting ran about two to one that the first quarter of the new year will equal that of '53. The third expecting a decline think it will be one of 10% to 15%.

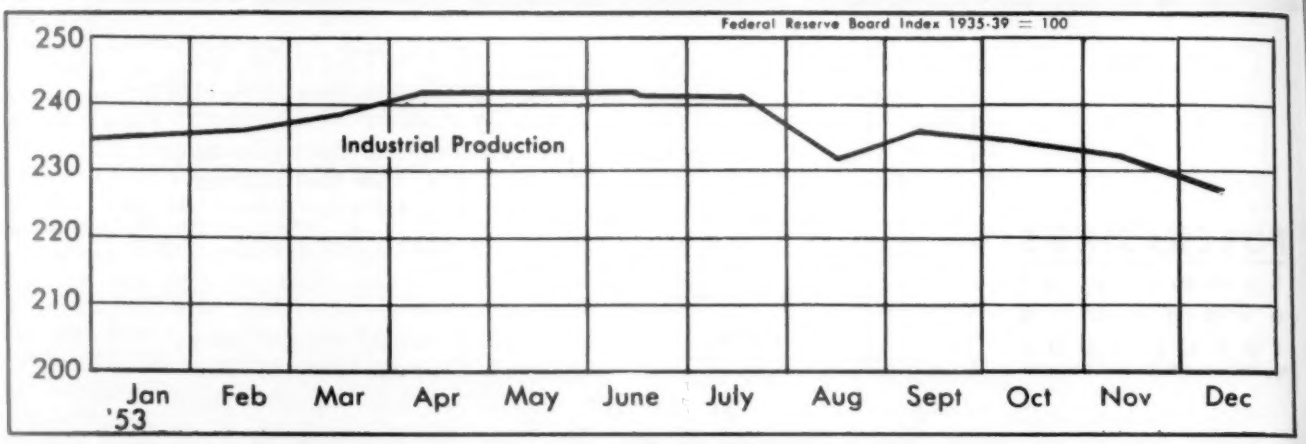
The two largest electrical manufacturing firms have a lot of confidence about the coming year. General Electric's president Ralph Cordiner says G.E.'s sales will remain at about the '53 level - approximately $3 billion. And that takes into consideration an expected drop in defense business. Gwilym A. Price, head of Westinghouse goes even further. "Despite stiffer competition..." he says, "sales of Westinghouse products are expected to reach the highest peak in the company's history in 1954."

These predictions naturally shouldn't be taken as gospel on what's due for all business in '54. But it's interesting to look back a year when there was some uneasiness about prospects for '53. At that time both G.E. and Westinghouse said flatly they didn't go along with the dim view, and predicted a good year. The record for '53 shows how right they were.

The in-between view - probably closest to what will happen to business over-all - is voiced in the well-known Cleveland Trust Company bulletin. In accordance with what it calls a "peculiar custom," the bank makes these basic forecasts for the coming year:

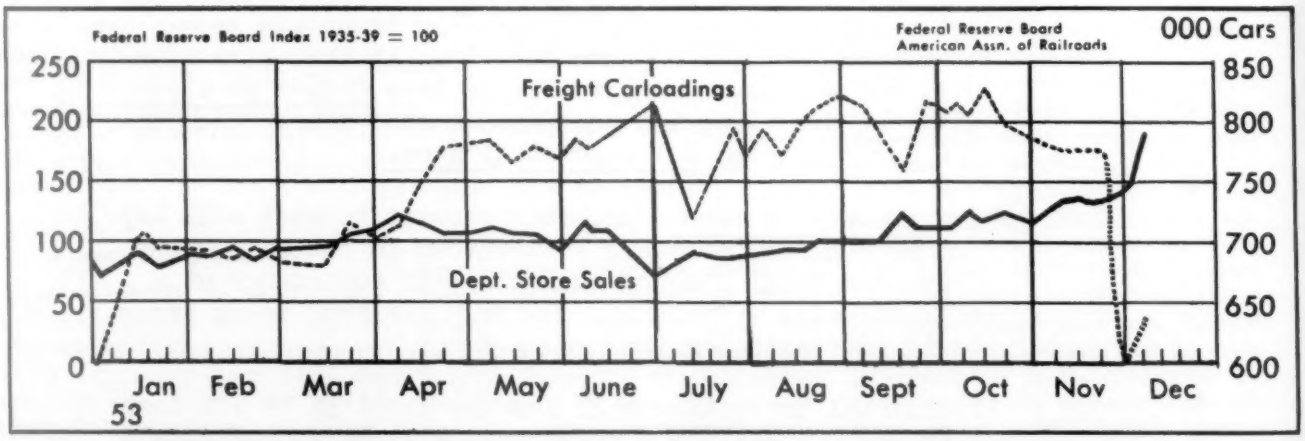
Industrial production will average about 5% to 10% lower than '53. Steel ingot production will be approximately 8% below last year's record, but higher than 1952's 93 million tons. Passenger automobile output will probably be at least 9% below the '53 production of about 6,200,000 cars. Total expenditures for construction put in place will show a "slight decrease" from '53.

PRODUCTION



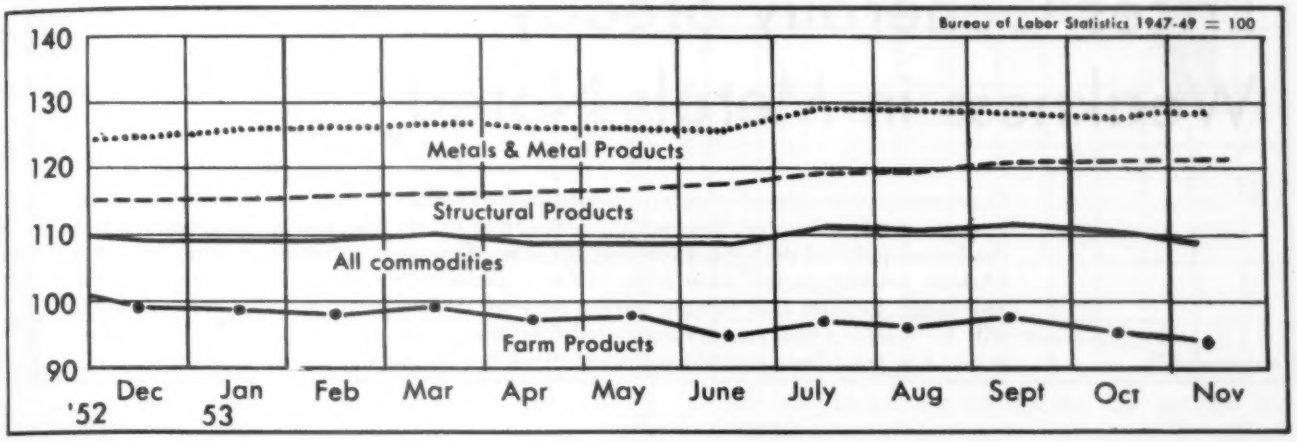
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index	1935-39=100	228 (est.)	231	234	— 1.3	— 2.5
Steel Production (Weekly)	000 net tons	1,917	2,057	2,236	— 6.8	—14.2
Electric Power Production (Weekly)	mil KWH	8,582	8,398	8,165	+ 2.1	+ 5.1
Bituminous Coal Production (Weekly)	000 net tons	8,210	8,825	10,150	— 6.9	—19.1
Auto, Truck & Bus Output (Weekly)	units.	118,585	131,433	123,312	— 9.8	— 3.8
Petroleum Output (Daily Average)	000 bbls.	6,085	6,038	6,394	+ 0.7	— 4.8

TRADE



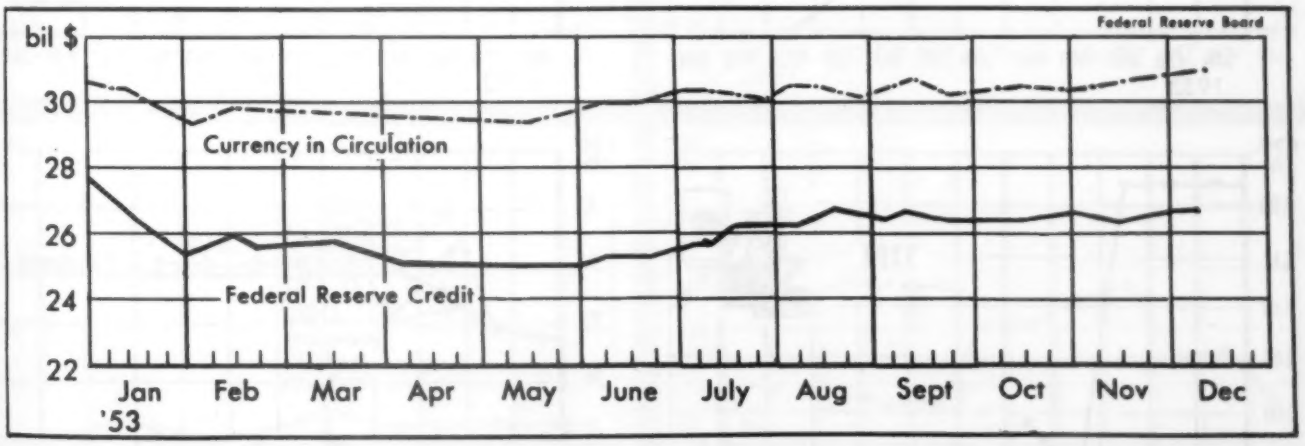
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	1935-39=100	190	122	195	+55.7	— 2.5
Commercial Failures (Dun & Bradstreet)	no.	202	207	120	— 2.4	+68.3
Freight Carloadings	cars	662,035	747,868	719,324	—11.7	— 8.0
Miscellaneous Carloadings	cars	353,940	371,422	365,266	— 4.5	— 3.1

PRICES



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
All Commodities (BLS)	1947-49=100	109.8	110.2	110.7	— 0.3	— 0.8
Farm Products	1947-49=100	93.6	95.3	103.6	— 1.7	— 9.6
Metals & Metal Products	1947-49=100	127.9	127.9	123.9	0	+ 3.2
Structural Products	1947-49=100	120.8	120.7	114.5	+ 0.1	+ 5.5
Steel Billets (Pittsburgh)	net ton	$62.00	$62.00	$59.00	0.0	+ 5.0
Steel Scrap, heavy melting, Pitts	net ton	$33.50	$37.50	$43.00	—10.7	—22.1
Copper, electrolytic	lb.	.29½—.30	.29½—.30	.24½	0.0	+20.4
Rubber (rib-smoked sheets)	lb.	.20⅜	.20⅜	.30¾	0.0	—33.8

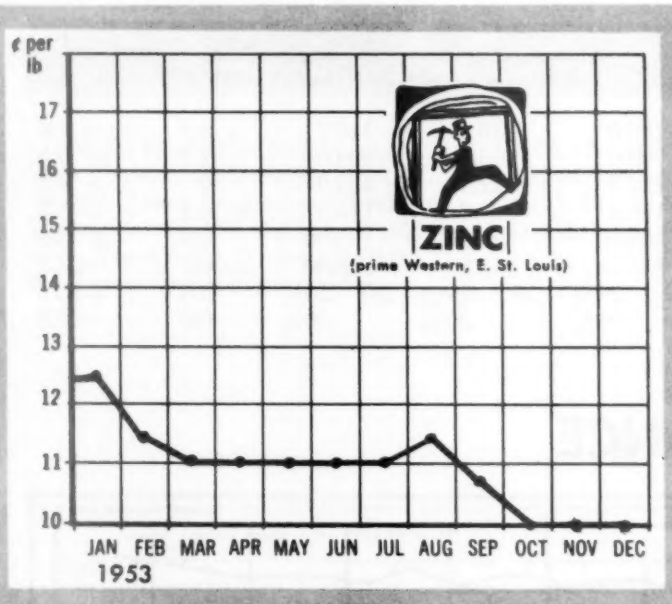
FINANCE

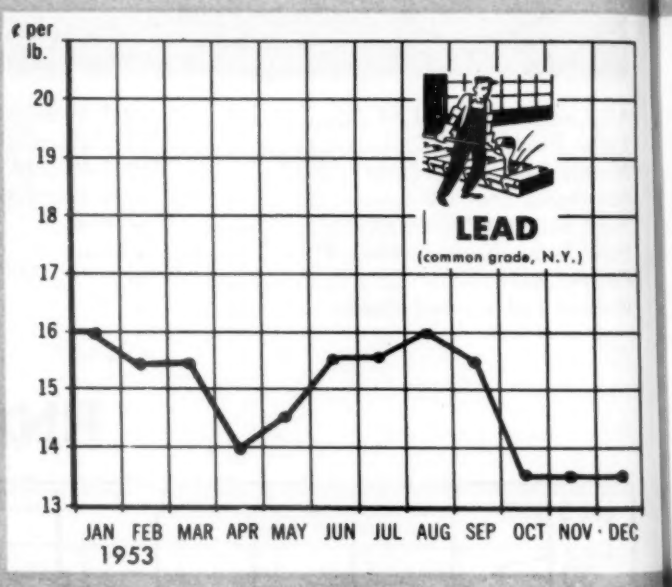


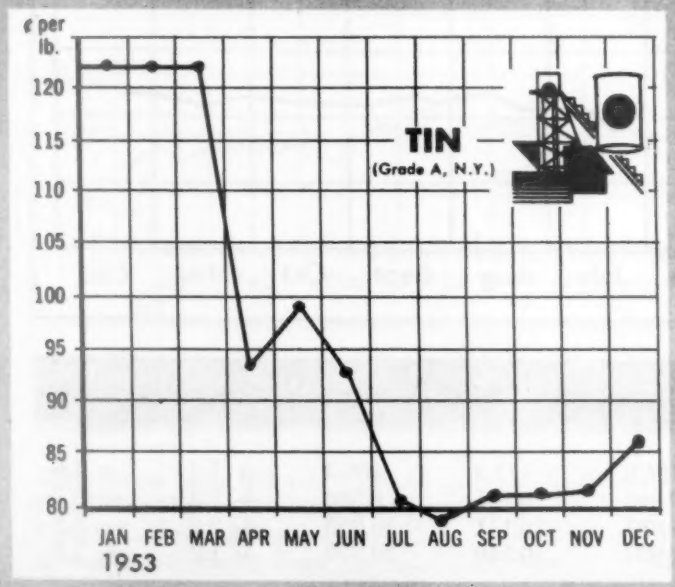
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Stock Prices (Standard & Poor's)	1926=100	196.3	194.2	206.3	+ 1.3	— 4.6
Bank Clearings (New York)	mil $	9,048	8,281	8,320	+ 9.2	+ 8.7
Federal Reserve Credit	mil $	26,681	26,111	26,860	+ 2.2	— 0.6
Currency in Circulation	mil $	30,904	30,540	30,370	+ 1.2	+ 1.7

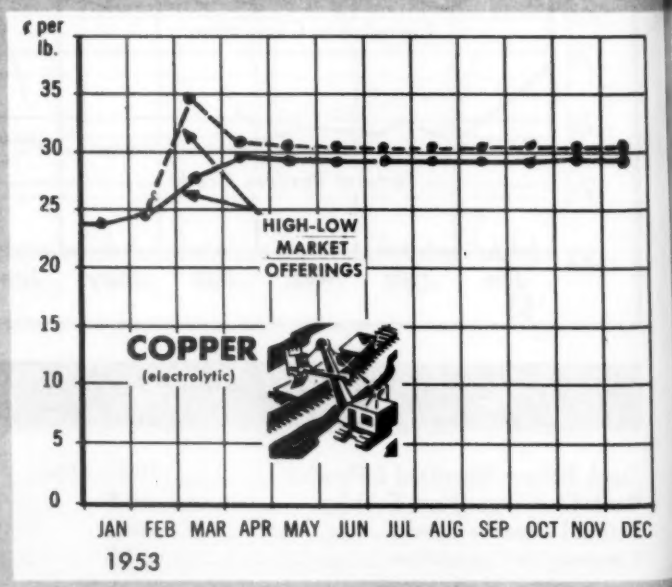
Prices Generally Steady; Weakness in Metals Noted

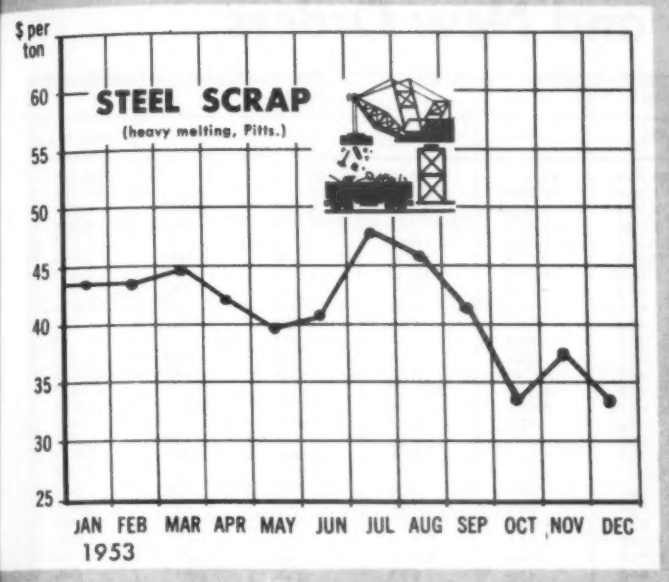
Commodity prices stayed generally steady throughout the month, but growing weakness in some metals was noted. Steel scrap prices continued to slide, and in one grade reached the lowest point of the year. Increased supplies of copper in coming months, now that Chilean production has been released, will probably result in lower prices for the red metal. Reports that foreign buying of lead is slackening and that more imports will be reaching this country soon, indicate downward pressure on price soon. Zinc demand is good here and abroad, and prices remain firm.

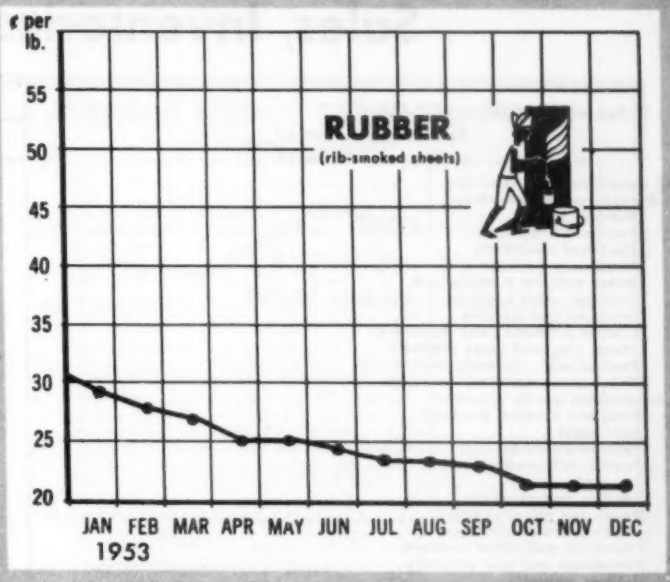


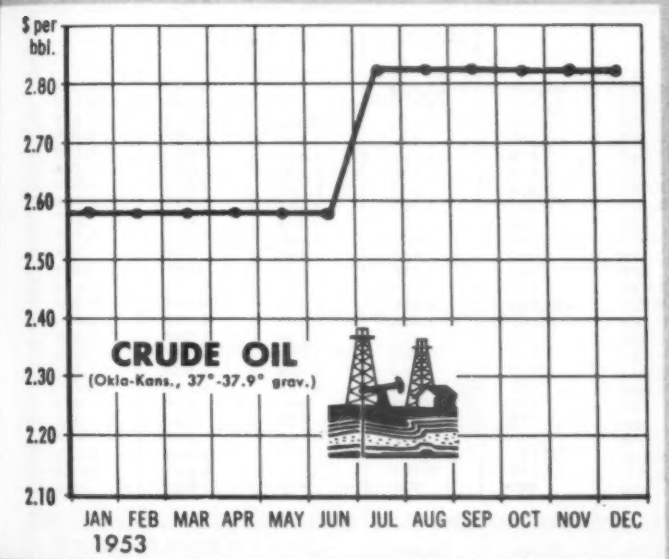


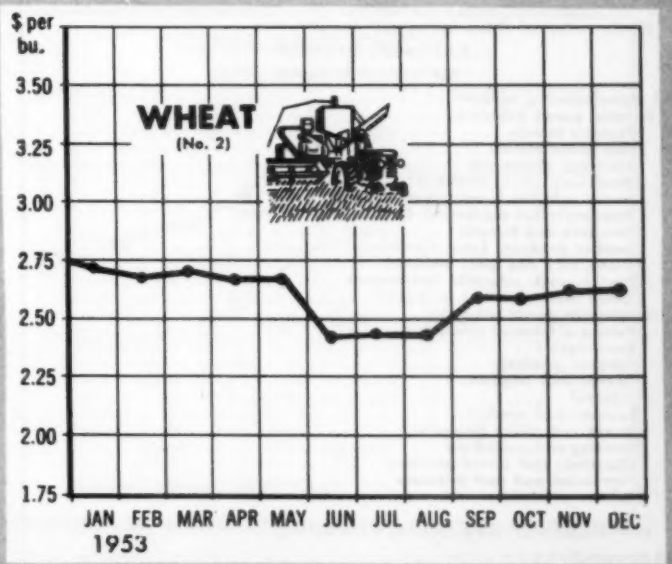


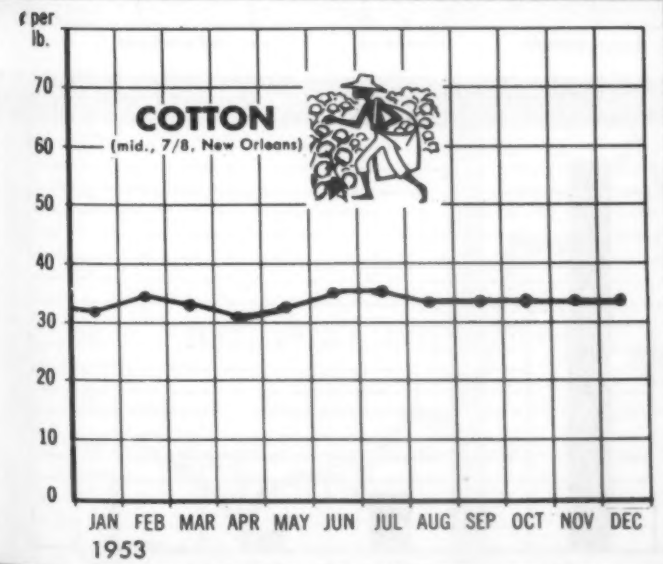


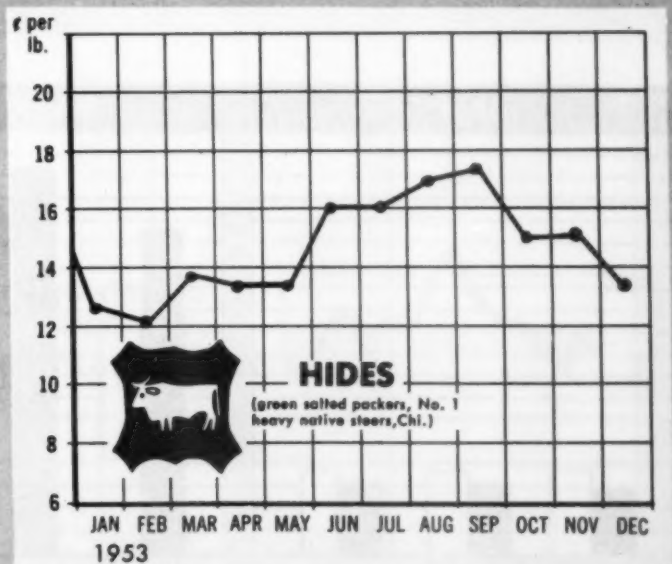

$ per ton
STEEL SCRAP
(heavy melting, Pitts.)
60
55
50
45
40
35
30
25
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1953


¢ per lb.
RUBBER
(rib-smoked sheets)
55
50
45
40
35
30
25
20
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1953


$ per bbl.
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
CRUDE OIL
(Okla-Kans., 37°-37.9° grav.)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1953


$ per bu.
WHEAT
(No. 2)
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1953

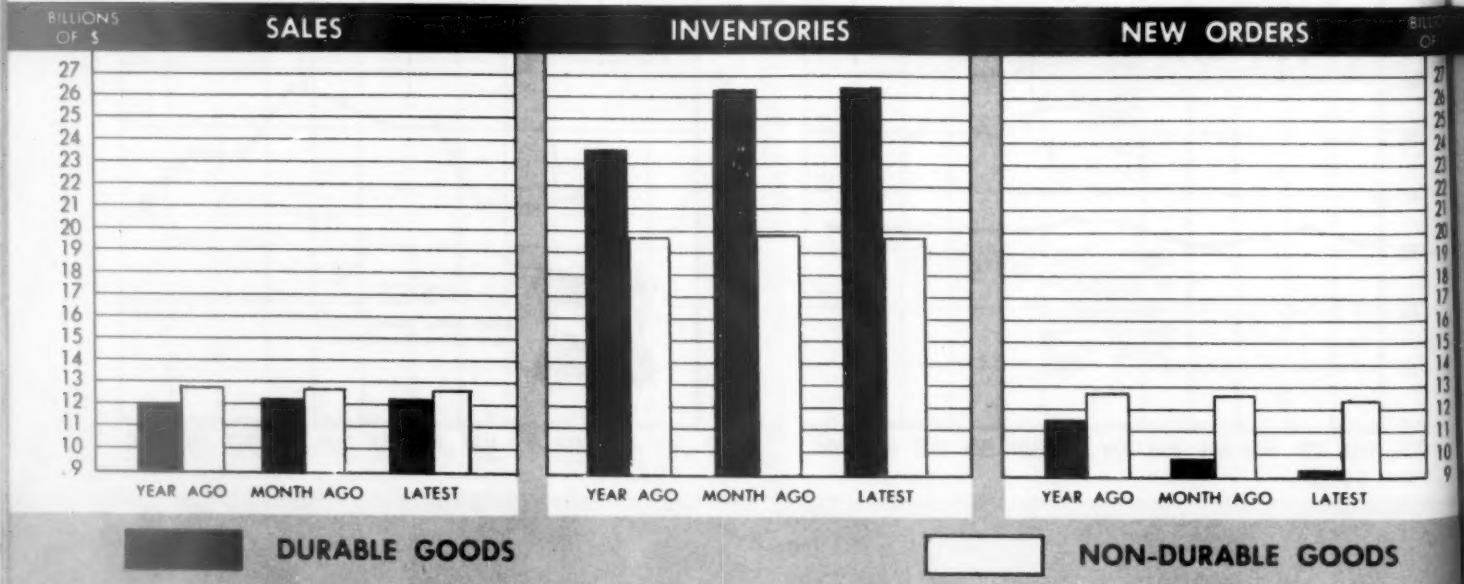

¢ per lb.
COTTON
(mid., 7/8, New Orleans)
70
60
50
40
30
20
10
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1953

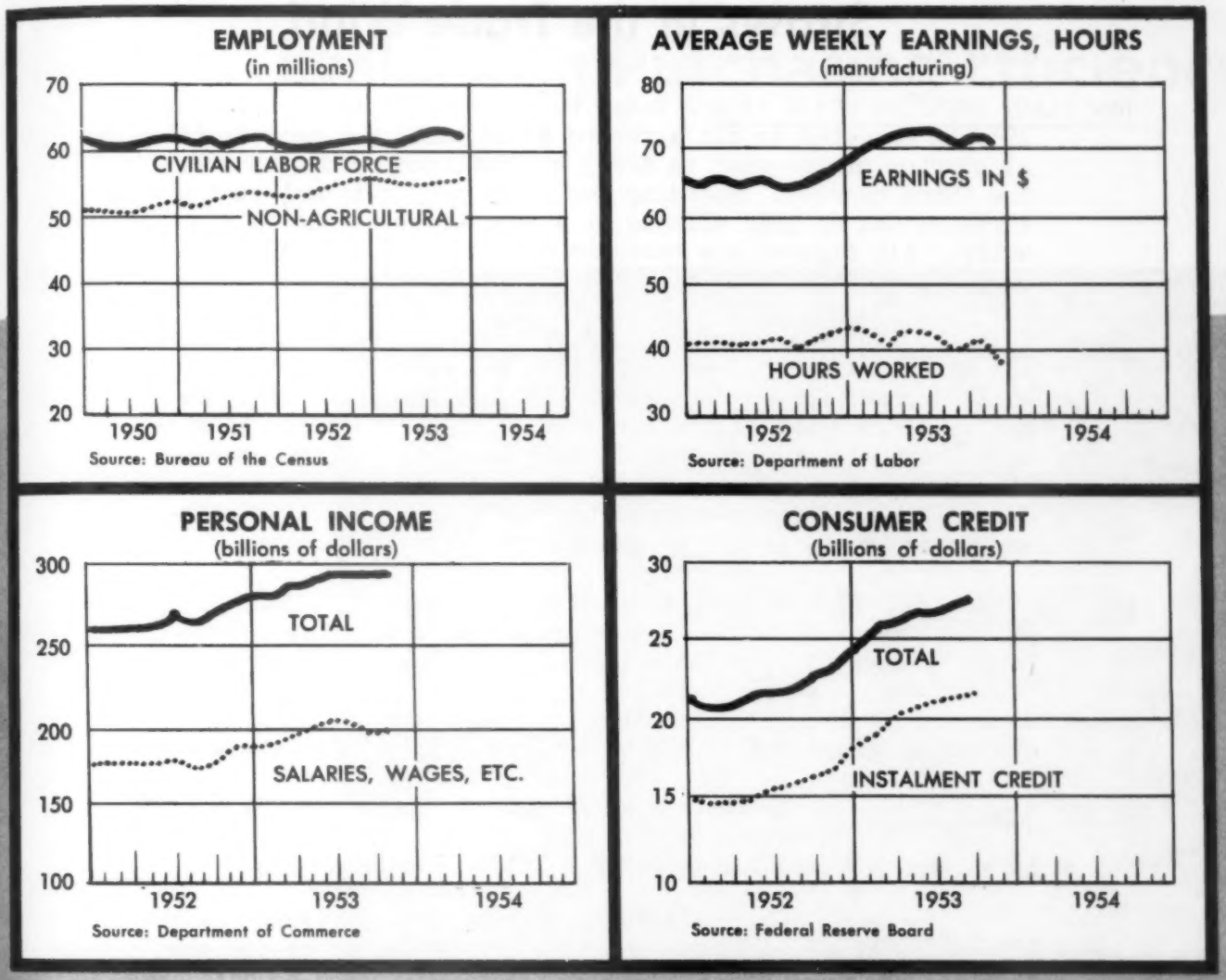

¢ per lb.
20
18
16
14
12
10
8
6
HIDES
(green salted packers, No. 1 heavy native steers, Chi.)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1953

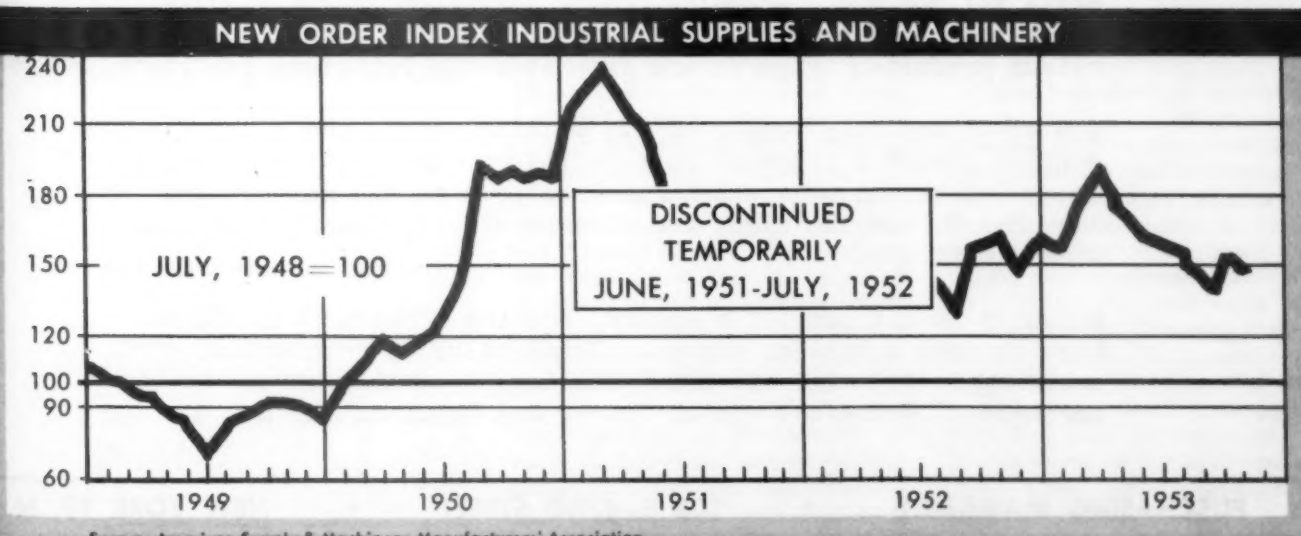
Sales, Inventories and New Orders

	1952	1953				
	Oct.	June	July	Aug.	Sept. (r)	Oct. (p)
Value of Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)						
All Manufacturing industries	24,753	26,172	26,514	25,398	24,882	24,774
Durable goods industries	11,968	13,046	13,144	12,615	12,221	12,155
Primary metals	2,198	2,172	2,284	2,135	1,969	1,934
Fabricated metals	1,263	1,457	1,515	1,354	1,332	1,338
Electrical machinery	1,205	1,478	1,352	1,467	1,550	1,416
Machinery (except electrical)	2,068	2,089	1,992	2,014	2,027	1,986
Motor vehicles & equipment	1,842	2,255	2,308	2,190	1,927	2,011
Transportation equipment (exc. motor vehicles)	812	816	895	898	840	921
Furniture and fixtures	410	367	348	368	369	328
Lumber products (exc. furniture)	678	752	766	707	667	676
Stone, clay and glass products	553	597	587	593	602	582
Professional, scientific instruments	277	353	381	305	290	306
Other industries, incl. ordnance	663	710	716	586	648	658
Nondurable goods industries	12,785	13,126	13,369	12,783	12,660	12,619
Food and kindred products	3,452	3,453	3,698	3,497	3,474	3,443
Beverages	513	671	653	736	669	590
Tobacco products	327	318	322	313	320	302
Textile-mill products	1,188	1,185	1,207	1,066	1,003	1,011
Apparel	1,281	1,182	1,174	1,025	985	1,096
Leather and products	265	355	376	333	300	283
Paper and allied products	734	734	748	789	783	771
Printing and publishing	720	738	681	655	649	689
Chemicals and allied products	1,660	1,734	1,749	1,665	1,675	1,691
Petroleum and coal products	2,181	2,268	2,252	2,190	2,314	2,256
Rubber products	464	488	511	515	488	n.a.
Book value of Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)						
All Manufacturing industries	43,415	45,525	45,792	46,195	46,515	46,294
Durable goods industries	23,615	25,775	25,983	26,302	26,430	26,451
Primary metals	3,084	3,175	3,238	3,364	3,455	3,485
Fabricated metals	2,362	2,694	2,776	2,897	2,943	2,934
Electrical Machinery	3,039	3,419	3,458	3,493	3,471	3,507
Machinery (exc. electrical)	5,275	5,529	5,536	5,539	5,500	5,476
Motor vehicles & equipment	2,735	3,338	3,341	3,352	3,353	3,374
Transportation equipment (exc. motor vehicles)	2,472	2,701	2,703	2,682	2,751	2,736
Furniture and fixtures	533	569	576	553	538	537
Lumber products (exc. furniture)	1,019	1,094	1,087	1,108	1,128	1,153
Stone, clay and glass products	874	953	951	937	918	898
Professional, scientific instruments	778	818	826	842	837	855
Other industries, incl. ordnance	1,445	1,486	1,491	1,534	1,536	1,498
Nondurable goods industries	19,800	19,750	19,809	19,894	20,084	19,843
Food and kindred products	3,488	3,147	3,104	3,061	3,120	3,084
Beverages	1,222	1,183	1,187	1,119	1,098	1,090
Tobacco products	1,726	1,759	1,780	1,799	1,831	1,804
Textile-mill products	2,841	2,762	2,786	2,809	2,802	2,744
Apparel	1,609	1,697	1,742	1,785	1,822	1,735
Leather and products	549	625	590	589	614	605
Paper and allied products	960	976	955	927	935	925
Printing and publishing	744	750	727	745	757	749
Chemicals and allied products	3,010	3,122	3,149	3,207	3,230	3,232
Petroleum and coal products	2,777	2,789	2,858	2,938	2,953	2,953
Rubber products	874	942	931	914	922	n.a.
Manufacturers' New Orders (Adjusted)						
All Manufacturing industries	24,152	25,553	24,417	22,419	22,449	22,369
Durable goods industries	11,452	12,456	11,078	9,541	9,896	9,935
Nondurable goods industries	12,700	13,097	13,339	12,878	12,553	12,434

p—preliminary r—revised n.a.—not available




EMPLOYMENT
(in millions)
70
60
50
40
30
20
CIVILIAN LABOR FORCE
NON-AGRICULTURAL
1950
1951
1952
1953
1954
Source: Bureau of the Census
AVERAGE WEEKLY EARNINGS, HOURS
(manufacturing)
80
70
60
50
40
30
EARNINGS IN $
HOURS WORKED
1952
1953
1954
Source: Department of Labor
PERSONAL INCOME
(billions of dollars)
300
250
200
150
100
TOTAL
SALARIES, WAGES, ETC.
1952
1953
1954
Source: Department of Commerce
CONSUMER CREDIT
(billions of dollars)
30
25
20
15
10
TOTAL
INSTALMENT CREDIT
1952
1953
1954
Source: Federal Reserve Board


NEW ORDER INDEX INDUSTRIAL SUPPLIES AND MACHINERY
240
210
180
150
120
100
90
60
JULY, 1948=100
DISCONTINUED
TEMPORARILY
JUNE, 1951-JULY, 1952
1949
1950
1951
1952
1953
Source: American Supply & Machinery Manufacturers' Association

Straws in the Trade Wind

NEW PLANT SPENDING STAYS HIGH - Total business spending on new plants in 1953 is expected to hit a record $27.8 billion. Rate in the final quarter of the year is $28.3 billion, compared with $28.8 in the third quarter. Spending for plant and equipment in the first three months of 1954 will be at a rate of about $28 billion annually. All figures are based on estimates of the Department of Commerce and the Securities and Exchange Commission.

NEW NAME IN ALUMINUM - Another big copper producing firm is broadening its base in the non-ferrous field. Kennecott Copper Company will purchase for investment $16,250,000 par value of a new series of convertible preferred stock from the Kaiser Aluminum & Chemical Corporation. It will also buy 100,000 shares of common stock from the founding stockholders. Anaconda Copper Mining Company entered the field last year as a primary producer and is now building a big mill in Montana.

BIG TACONITE YIELD SEEN - Steel company officials predict that by 1958 shipments of taconite concentrate from the Mesabi Iron Range will reach 12 million tons. The companies are investing more than $500 million in a project to offset the depletion in Mesabi's iron ore. Taconite ore has an iron content of about 25% to 30% as against 50% for high grade ore.

IT WAS A GOOD YEAR - While there's much talk of '54 prospects, a look at year end statements by officials in some basic industries shows that the economy built up a lot of steam in '53:

Electric power output, according to preliminary figures by the Edison Institute, went over 402 billion kilowatts by the end of November. Last year's 12-month total, a record to date, was 398.9 billion.

Production of liquid petroleum, natural gas and oil products broke all records. Domestic demand increased by 116 million barrels or 4.6% over 1952, setting an all-time peak for petroleum products. Figures are from American Petroleum Institute.

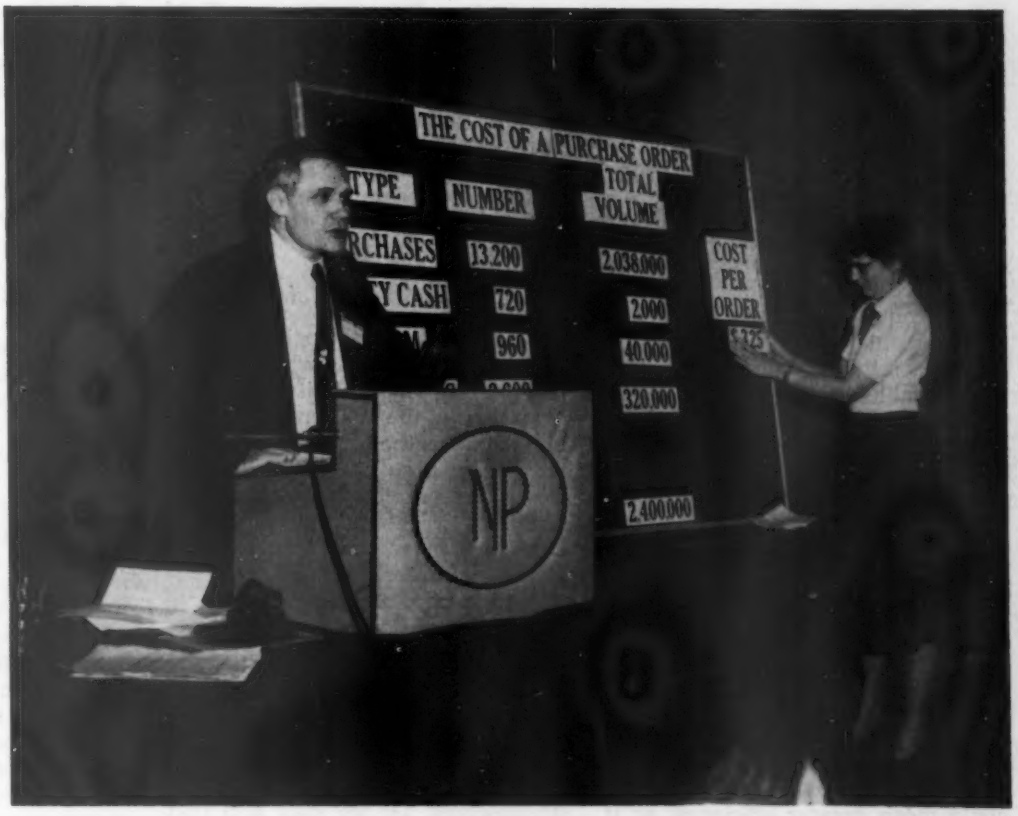
The steel industry made over 112 million tons - the biggest production during a calendar year in this or any country. "There is no indication of a substantial setback in the near future" says Max D. Howell, executive vice-president, American Iron and Steel Institute.

Although it did not set a record, housing construction stayed high at over a million starts. Total value of residential building in '53 will hit $11.7 billion, according to the Department of Commerce. Total in '52 was $11.1 billion.

Know what your operating ratios mean

Evaluating Purchasing Efficiency

By Albert Pleydell



Address at the annual meeting of the National Institute of Governmental Purchasing, Cincinnati, November 10, 1953.

THE AUTHOR, who heads the New York management consulting firm of Albert Pleydell Associates, Inc., was formerly Commissioner of Purchases for the City of New York, and is a founding member and past president of N.I.G.P.

IN contrast to the plentiful supply of specific, tested information concerning the measurement of factory and routine white collar operations, there is very little such material available on purchasing. Yet there is a growing demand for measuring the efficiency of buying. In regard to governmental purchasing, this is a public demand, for the days of the taxpayer's apathy over his taxes are numbered.

Purchasing is one of the business type functions of government. As such, it should be judged by performance standards. Unfortunately, that is much easier said than done.

Other business-type departments can be judged by fairly objective evidence. For example, revenue producing facilities can be tested against the P&L statement. Custodial cleaning can be expressed in cost per square foot of floor space maintained, and duplicate services can be rated by the unit costs of the jobs turned out. Naturally, the yardsticks have to be accurate. This means that a lot of careful spadework has to precede their preparation. But once developed, objective measurement of the performance of most of the business-type activities is relatively easy.

When it comes to measuring the efficiency of a purchasing department, the picture is quite different. Selecting a few key indicators of activity is easy enough. We might take the requisitions processed, purchase orders issued, or discounts earned, to name a few.

Then we could develop ratios or unit costs. If we plotted these figures, weekly or monthly, we would be recording the comparative efficiency of the department over a period of time. Or—would we? In fact, we might be doing exactly the opposite!

Interpreting the Figures

Take requisitions, for example. Suppose that for our first month the ratio of requisitions to purchase orders runs about 90:100 (i.e. 100 purchase orders are issued to cover 90 requisitions). Let us assume that, over a few months, this ratio shifts to 90:81. In other words, 19% fewer orders are issued for the same number of requisitions. Consolidation of requirements is a sign of good buying. Hence the new ratio could mean considerable improvement.

But we can't be certain that this figure really means that each requisition represents a greater concentration of requirements. It could mean, instead, that there had been a sharp decline in the number of firms receiving orders, reflecting a weakening of the department's ability to attract vendors.

Or, take purchase orders. Suppose our first ratio of the number to orders to operating costs developed a unit cost of $4.00 per order. Then, as the months went by, this figure dropped to $3.25. This could mean greater efficiency, or it could mean greater waste! If the drop reflected lower operating costs, or a genuine increase in work load at no added burden, fine. But it might merely reflect that well known purchasing device of splitting orders—making two orders do the work of one. Typing is the easiest part of buying.

Perhaps the unit cost climbed from $4.00 to $6.00 per order. That could mean gross inefficiency, or it could mean that a much better buying job was being done. The inefficiency could have come from having increased the staff unnecessarily, or not reducing it sufficiently if the work load fell off. The improved buying job might consist of eliminating a lot of useless purchase orders that were merely copies of personal expense vouchers or petty cash transactions, or perhaps validating transfers between departmental accounts.

So it goes. One yardstick after another can be devised to measure purchasing—yet, unless great care is used in interpreting the figures, we can be 100% misled.

Does this mean it isn't practical to use ratios and unit costs to judge purchasing efficiency? Of course not. Numerical yardsticks should be developed, carefully selected to fit the needs of our own buying work. But we have to know what we are doing, in order not to arrive at conclusions that are contrary to the facts.

First of all, we should start by measuring the *status quo*. Good, bad, or indifferent, that is what we have to work with. Then, once we have compiled the figures for the current period, we should get right to work on an examination of the department's various activities, and the place to start is with the local policies that are affecting buying operations.

Examine Policies

The necessity for beginning with policies becomes clear when we consider a few practical situations. For example, in the matter of building maintenance, the purchasing records may show a stream of requisitions for small replacement items — plumbing, electrical, or hardware. Does this mean that purchasing is failing to foresee needs and neglecting to carry adequate stocks of frequently used supplies, and is not consolidating requirements? Perhaps. But let us first see what the policy on maintenance is. We may find the Chief Engineer a favored department head, practically autonomous and probably allergic to storekeeping. Or we may find that the controlling budget policy necessitates a hand-to-mouth program of emergency repair work, with no provision for carrying reserve supplies.

Again, we may find scores of confirming orders issued for various food items, with nary a single competitive quotation in the lot. A shocking example of laziness, habit, or favoritism? Perhaps. Still, let's look at the policy first. We may find that from time immemorial, the dietitian has handled all food buying and is not expected to keep records. The confirmatory purchase orders are to satisfy the requirements of the comptroller, who insists on such paperwork to support payments.

For a final example, let's recap the purchases of carbon paper and ribbons. Seeing the great variety of weights and brands, we must have discovered proof positive that the buying office has failed miserably in the simplest kind of standardizing. We could be right, only there happens to be a "keep the girls happy" policy that permits each secretary to decide just what supplies she wants to use.

While on the subject of policies, let's not forget that not all "sacred cows" are in India. If we find certain policies adversely affecting the purchasing job, let's set the wheels in motion to change them. It may take time, and it may lead to some difficult administrative situations, but the potential results should encourage us to keep pressing until we either win or are overwhelmingly squelched.

Analyze Procedures

After policies, let's scrutinize procedures. How much useless paperwork is the department processing because of buck-passing by the accounting office? Is the budget coding system generating extra work? Do we have a wacky, inflexible system that forces the ordering of library books and periodicals into the hard mold of purchase orders?

Once we have pin-pointed our procedural weaknesses, let's map out a program of *gradually* correcting things. By concentrating on one phase at a time, we can begin using our ratios and unit costs. We will know the precise effect of the instant change we are making. Thus, variations in the factors that do not accord with our predictions are being caused by other factors. Finding these factors is what I mean by beginning to use the new yardsticks.

A word of caution: If we try to compare our ratios and unit costs with those of another purchasing department, we may get a terrible shock. Our cost per purchase order may be steadily rising—a good sign because we are whittling away the useless ones. Theirs may be falling —a good sign because they are beginning to spread their orders among more suppliers. But the two sets of cold figures, side by side with no explanation, will certainly make for confusion, to say the least. It will be much better for our peace of mind if we keep our ratios and unit costs at home.

Appraising Quality

With a good set of yardsticks developing under our control, can we feel satisfied that we are measuring the efficiency of our buying work?

(*Please turn to page* 282)

Remember principles in dealing with pressures

Preference to Local Bidders

By William J. Burke, City Purchasing Agent, Corpus Christi, Texas

Abstract of a paper presented at the annual convention of the National Institute of Governmental Purchasing, Cincinnati, November 10, 1953.

International Note at NIGP Convention

Convention Chairman John G. Krieg, City Purchasing Agent, Cincinnati, O.; L. D. Marin, Director, New York Procurement Office, Commonwealth of Puerto Rico; Martin Marques, Jr., Director, Government Service Office, Commonwealth of Puerto Rico, San Juan, P. R.; NIGP President John Ward, City Purchasing Agent, Chicago, Ill.

ANY policy of preference automatically creates a bad situation. The implied obligation leads the way to active pressure and demand, the fulfillment of which is prejudicial to our position as buyers, in that it assures satisfaction of some, to the exclusion of others. The danger lies in the arbitrary act of exclusion. The announced intention and performance of the act of giving preference to some, and excluding others, tends to establish a precedent which can—and most likely will—become embarrassing, troublesome, and costly.

We in public purchasing are all aware of some pressure for preference. Frequently we are aware of the pressure, but not of the source. Obviously, such pressures are most keenly felt at the local level. However, pressures with less identification are those that are exerted in major cities and higher political subdivisions.

At all levels, pressure for preference bears a direct relation to the business cycle. Lewis, in his book, *Procurement Principles and Cases*, says: "It may be noted that the 'buy at home' doctrine is not urged with equal emphasis at all times. . . . During business slumps, these questions take on considerable significance, for during hard times no stone is left unturned which might bring in more sales. Also, the social problems involved during such depressed periods make local selection of sources more important."

Each of us represents a different governmental agency, and it must be recognized that our individual positions and the laws under which we operate are different. Nationally, there is no uniform City Charter. There is variation between counties and states. The conditions or limitations under which our city operates are not likely to be the same in our neighbor city.

Legal Limitations

We must be able to excuse our vendors if they seem confused as to the correct point of contact when attempting to sell to governmental agencies. I believe, however, that any vendor wishing to do business with a governmental agency can find out with little difficulty the proper channels to follow.

We find ourselves reluctantly tolerating inequities in local situations; in some cases, we circumvent outdated or inapplicable provisions, in whole or in part; at other times, we just ignore them. It is immediately apparent that this is hazardous to the purchasing officer, who, in the final analysis, must get the job done in spite of many seemingly unnecessary difficulties and pitfalls.

City, state and county laws being what they are, a great amount of time must be consumed in their study before attempting any change in them, and the final results of modification efforts are sometimes disappointing. There seems to be a feeling on the part of such study groups that laws will be relaxed too much and that controls will be inadequate. But regulations that are too stringent hamper capable public officers in their performance of administrative duties, and fail to prevent poor or incapable administrators from doing a poor job.

The charter of the City of Corpus Christi is now being carefully examined by a fine study group, for the purpose of making revisions. It has been my good fortune to have the opportunity of presenting some of the problems of the purchasing officer, and to make certain recommendations to this charter study group. I have reason to believe that some of the recommendations will be adopted, and am hopeful that all will be incorporated in some manner in the final draft for revision of our city charter.

Status of Purchasing

While we are considering the laws under which we operate, let us briefly examine our status in the organization. Commercial organizations generally have recognized and now classify their purchasing officers in the management category. Government has not changed as rapidly as commerce, and the public purchasing officer is likely to find himself still in the auxiliary group. When so classified, he is more subject to pressure for preference than he would be if he were in the management category.

Following the pattern of commercial firms, public purchasing officers are now selected on the basis of background, experience, personal knowledge of the field, educational qualifications, and administrative ability. Naturally, we conclude that any purchasing officer so qualified should be placed at management level in government activities.

When the purchasing officer is on the management team, he has a better opportunity to present and receive support in the cardinal principles of the purchasing profession, which include (a) to establish and operate under the best management policies; (b) to seek and obtain the best values; (c) make awards that are to the best interest or most advantageous to the using agency; reduce to minimum effectiveness the pressure tactics used by biased interests.

Self-Made Difficulties

Since each of us administers a department or division, we should continuously examine our organization and methods. Sometimes we inadvertently build up pressures for preference when we depend on, use, or allow local conditions to influence our buying habits or the preparation of specifications. Serious difficulty is experienced when we collaborate with a single vendor representative and fail to establish competitive balance. Limited independent research on our part also will cause us trouble and result in the narrowing of specifications and sources. This act, more than any other, makes us more subject to pressures in a local market area than we otherwise would be.

Certainly we must not overlook difficulties created within our department by the personal habits, background, experience, or laziness of our employees, who, because of their own limited knowledge, develop the tendency and habit of calling the supply they know can be most conveniently and quickly depended on to furnish information.

We impose upon our vendors, unduly and at the most inopportune times; under these circumstances, their claim to preference is justified and must be recognized. A tendency to narrow contacts is not limited nor related to any business cycle, but it does have a tendency to run in a type of cycle of our own creation.

Policy of Fairness

Preference should be *earned*, and when the transaction is analyzed certain points can be definitely and positively identified and classified as being the most advantageous to our agency. Obviously, sound purchasing and purchasing policies must consider the important factors of (1) price, (2) service, (3) quality, (4) delivery, and (5) miscellaneous, possibly including finance plans. With these criteria, we are in a position to administer the principle of preference, whether it be to local or out-of-town bidder, on an indisputably sound basis.

In Chapter 17 of Heinritz' book, he states: "To a certain extent, the whole process of selection is one of discrimination, so the buyer must look carefully to the results obtained. The decision is sometimes clear and sometimes very difficult. One thing to bear in mind is that the reputation for fairness is one of the most valuable assets a purchasing agent can have, and that this is at the foundation of good and lasting relations with his suppliers."

Paul Clovis, President of the Twentieth Century Press, Chicago, in addressing the convention of Printing House Craftsmen, said: "Let us remember, and sell the thought to our neighbors, that the Government actually cannot give something for nothing—for it has nothing, except our money and our future earning capacity, as American citizens. Let us point out that it is folly to attempt to obtain special advantage at the expense of Government—for Government is *us*, down to the last taxpayer. Let us remember that each one pays his share of the bill—that 'something for nothing' is still a myth."

I believe in and exercise preference to local bidders, when it can be definitely established, by comparison of all bids or offers received, that such preference is earned and justified. Regardless of the name of the firm or its location, the bid or proposal recommended must stand on its own legs.

In my opinion, there is only one legitimate way in which the principle of preference can be applied. To develop long range good will, the policy of impartial treatment, along with an attitude of objective evaluation, must be the goal of every man and woman who has honestly chosen the purchasing profession for his life work.

Obviously, the benefits that accrue from the exercise of sound professional policies benefit, in equal proportions, the vendor and the using agency. The duty is ours, both morally and legally, to uphold this high standard in our administration of public business. Unless we do so, we will eventually be obliged to substitute the words "local monopoly" for "public business", and automatically we shall have to credit ourselves with having obtained less value, rather than more, for the tax dollar.

Purchasing Public Works Supplies

By *Andrew L. Lehrbaummer,* Assistant Purchasing Agent, City of Milwaukee, Wis.

Abstract of an address before the Engineering & Public Works Section, League of Wisconsin Municipalities, Madison, Wis., October 16, 1953.

TO save money in the purchases of Public Works supplies and equipment it is of paramount importance that needs should be foreseen, with a planned program, in ample time to request competitive bids. "Haste makes waste" is particularly true in the field of purchasing, not only because of the absence of complete competition, but often the lack of sufficient time to make a thorough study and explore the offerings which are on the market.

Bids for term contracts and agreements, or for one delivery on winter items such as calcium chloride, rock salt, anti-freeze, tire chains, fuels, etc., should be started about six months in advance of the need, say in May or June. Likewise, those commodities needed to carry on the summer work, such as sand, gravel, stone, topsoil, sod, grass seed, etc., should be prepared for bids during November and December. The best results in requesting bids are always received in periods of least demand.

Stores Facilities Important

To those of you who are fortunate in having facilities to store stocks of items which are constantly needed, it is not necessary to point out the advantages of savings in quantity purchases. The reduced necessity of having an employee spend valuable time in calling vendors for needed supplies is in itself a substantial item.

The City of Milwaukee, in October, dedicated a new warehouse which cost $160,000 and provided a floor area of 22,000 sq. ft. and cubic footage of approximately 320,000. It is intended to carry a stock of about $100,000 in supplies, with an average anticipated turnover of three times annually. It is estimated that savings of approximately 30% will be realized from the many advantages of such a facility.

Among other things, it will allow an opportunity to take economic and market trends into consideration when making purchases for stock. For example, when a decline in prices is expected, purchases for stock will be held off or made cautiously on a short term basis. On the other hand, in a rising market, stocks will be increased to take advantage of the trend. But at all times, the required materials will be on hand as needed.

Centralized Purchasing

In some communities, the engineer or some one in a similar position does the purchasing. It may be that the size of a town or village does not warrant a full-time purchasing official. Engineers are too busy today to spend time in interviewing salesmen, maintaining source of supply lists, tabulating bids, and such other work essential to competent purchasing. There should be some other delegated authority through which all the purchases are channeled, so as to have all of the purchasing performed at one point. This may be a purchasing agent, city clerk, financial officer, or a committee.

Then, for utmost benefit and to avoid all criticism, full specifications should be prepared and bid requests sent to all prospective bidders for full competition. The bids should be opened publicly at a predetermined time, and tabulation of the bids received should be conspicuously posted as public information.

Advantages of the centralization of purchasing include:

1. Better prices due to consolidation of needs and larger quantities purchased.

2. Opportunity to study and effect a program of standardization for like or related products.

3. One point of contact for the salesmen, rather than calling on many different people. (Sometimes it is advisable to refer the sales people to other parties for technical or other information.)

4. Simplification of accounting procedures in that one account is kept with the municipality and all invoices are billed accordingly and forwarded to one department for early attention and prompt payment. This is necessary to preserve good vendor relations.

5. Careful processing of the invoices so that the correct amounts are paid and any cash discount taken. In 1952, the City of Milwaukee's earnings by taking advantage of cash discounts offered amounted to almost $48,000.

6. Proper and rightful exemptions of federal excise taxes on a wide

variety of products and services, amounting up to 25% of the purchase price.

In these days when every possible saving must be made, due to the increasing costs of carrying on municipal business, every effort should be expended to make the employees of a municipality more aware of the need of getting greater value for each dollar. There is much that can be done, and the purchasing official is the logical person to show the way and instill in others this urge for cost consciousness. We are not in the position of private industry, where cost-saving suggestions are often rewarded with a financial prize or remuneration. However, we can claim the uplifting reward of the self-satisfaction of a job well done.

For example, an engineer with the City of Milwaukee suggested revisions in a specially constructed water hydrant. These were adopted. They simplified construction and resulted in substantial savings. We recently purchased 400 hydrants, which had previously cost $155 each; through the simplification of design and specifications, they are now purchased at $101.53 each. This will not only reflect an immediate saving of $21,548 in this transaction, but will be recurrent on each such purchase over many years.

Another example of savings made by the expending of a little effort rather than following the line of least resistance is shown in this case. For many years we were purchasing replacement springs for a snow plow from the vendor who furnished the original equipment; they were ordered year after year by part number, at $4.62 each. Then, some years ago, specifications were drawn up for the springs and sent, accompanied by a drawing, to the various spring manufacturers for a quotation. The low bid for an identical spring was $1.68 each. Two hundred of these springs have been purchased each year since this procedure was adopted, so a substantial saving of almost $3 on each unit, or $588 annually, has been realized on this insignificant part.

Local Bidders

The question of preference to local bidders arises very often. It is bound to be more conspicuous in the next few years because people are again coming around looking for the business of municipalities, and are putting forth the argument of their taxpayer status.

This question has been extensively discussed, pro and con. The City of Milwaukee gives preference to local bidders only when all factors in the bid are equal. First preference is to those who maintain stocks in the city; secondly, those who maintain stocks in the county; thirdly, those who reside in the city but do not maintain a stock; and fourth, those who reside in the county, but do not carry a stock.

Specifications

When specifications are prepared, the using department or personnel should cooperate with the purchasing authority to the fullest extent. The people who use the equipment or supplies must convey to the people who furnish them a clear understanding of the minimum requirements which must be met.

In the matter of equipment, emphasis on physical characteristics may tend to create a monopolistic specification and thus eliminate all competition. The necessary physical points should be covered, but the specifications should be augmented with a performance demand. What will this piece of equipment be required to do?

"Notice the high lubricating properties our grease contains?"

Specifications on fire apparatus, other motor vehicles, construction equipment, and even some of the everyday supplies, are sometimes quite controversial. A very successful and fair procedure in establishing acceptable specifications is in effect in the City of Milwaukee. A Standards and Specifications Committee consisting of four men, including the City Purchasing Agent, comprise this committee. Whenever specifications for very competitive items are drawn up to be used for a purchase, this committee mails a copy of the tentative specifications to all prospective bidders, asking them for their comments. They are also invited to appear at the meeting at which these specifications will be discussed. Only after the specifications have been publicly reviewed—and have been revised if necessary so that they are acceptable to the City and to those bidders who handle a suitable product—the bids are requested. This procedure saves many headaches for the purchasing authorities.

Professional Cooperation

Finding solutions to the problems of public purchasing officials has been considerably aided through national organization. The National Institute of Governmental Purchasing was organized in Milwaukee, in 1945. Its rapid growth has undoubtedly been due to a sort of mutual assistance pact—an unwritten law of cooperation *plus* between its members. Information is freely exchanged by public purchasing agencies. Through national headquarters in Washington, D.C., help for the solution of a problem can be received from a representative cross section of the members within a few days. Surveys are often made to obtain experience records on a national basis. A library of specifications is maintained, to which all members are urged to contribute. Unified action helps accomplish many beneficial objectives. One of these was recognition by motor vehicle dealers of the tax exemption on auto parts.

The Wisconsin Chapter of N.I.G.P. meets quarterly in various cities and discusses on a state level the many practical phases of public purchasing. These organizations have as their motto, "More Value for the Tax Dollar", and have made great strides in placing governmental purchasing on a higher plane. The experiences of other agencies in making savings are readily exchanged, without the necessity of trial and experiment by other members.

Furnishing the supplies and equipment needed for public works projects is a big job. To do it right, so that the best interests are served, cooperation of this sort, and teamwork between the engineering and purchasing personnel is of the utmost importance. You will find such cooperation very much worth your while.

How the Wage-Hour Law Classifies Purchasing Department Personnel

By Robley D. Stevens

Management Consultant
Washington, D. C.

SUMMARY: Some companies have incurred heavy penalties through misclassification of employees for wage-hour regulation purposes, frequently on the careless assumption that an executive or supervisory title or assignment automatically exempts the employee from overtime provisions. The law sets up specific criteria, as detailed in this article, and the inspector's decision rests upon the record, despite misunderstandings of the law. Accurate and adequate personnel records, keyed to legal requirements, will help avoid this liability.

WHY is one purchasing agent in a private enterprise exempted from overtime pay under the Federal Wage-Hour Law, while another is not? How can the purchasing agent become exempted? What are the requirements, and the chances of receiving official approval?

These and other practical questions are raised daily by purchasing executives throughout the United States after their employers have been haled into the Wage-Hour and Public Contracts Divisions for alleged violations on the status of these individuals.

In his former capacity as a law enforcement agent of the U. S. Department of Labor, this writer checked a substantial number of employers and found that some purchasing agents were not exempted. Consequently, these employers were sanctioned heavy penalties. These case histories might be used as a guidepost for others to go by.

One of the main reasons why these purchasing agents were not exempted from overtime pay after 40 hours a week was misclassification. In other words, if the managements involved had utilized the official exemption chart, and if the purchasing agents concerned had met all of the requirements, a large slice of the overtime bill might well have been eliminated. Hence, these wage-hour inspections proved costly to the companies, both in time and money, even though the errors were due to misunderstanding. Unfortunately, when I applied the official tests for exemption, a number of these purchasing executives could be classified properly as "regular workers" for numerous reasons.

Do your purchasing executives understand the rules? Are they taking full advantage of the exemption provision allowed them? Unless they do, by the time the wage-hour inspector finishes his investigation it is usually too late to do anything about the situation.

It's no secret, of course, that the purchasing executive is exempted from overtime pay after 40 hours a week when his position meets all of the official tests prescribed. However, the amended regulations do provide for tests of duties, responsibilities, salary levels, and other requirements, which his employer should apply in determining his exemption status in order to preclude costly penalties.

This entails a check of his job performance for meeting the federal formula, and a check of the records, to be certain if a purchasing agent is actually exempted. It would probably be a costly mistake to hastily conclude that the purchasing agent is exempt simply because he is a part of the management team or supervisory personnel, for of course the wage-hour inspector can be wrong only if the records actually reveal that he is qualified for the exemption. To find the answers to

FO-5 (Rev. 2/50)
U. S. DEPARTMENT OF LABOR
Wage and Hour and Public Contracts Divisions

CONFIDENTIAL INFORMATION FORM
(For Division use Only)

Form Approved:
Budget Bureau No. 44-R305.5

:For office use only:
:NO._____:
: W.H.____ P.C.____:
: both_____:

ALL INFORMATION FURNISHED WILL BE HELD ABSOLUTELY CONFIDENTIAL

TO PERSON FILLING IN FORM: Fill in as completely as possible.
If any answer is not known, so state.

1. INFORMATION ABOUT ESTABLISHMENT

(a) Name of establishment _____

(b) Address _____
(number and street) (City) (Zone) State)

(c) Does the firm have branches?_____ Where?_____

(d) Nature of business _____
(Example: manufacturing stoves, construction, wholesale shoes, mining, trucking oil, etc.)

(e) Does establishment ship out of state?_____ Does establishment receive goods from out of state?_____

(f) Does the establishment sell to or perform services for the following types of business? (Check):

_____ Private consumers
_____ Hotels, Restaurants, etc.
_____ Retail dealers
_____ Wholesale dealers
_____ Transportation companies
_____ Other public utilities
_____ Mining companies
_____ Manufacturers

(g) Has establishment worked on a U.S. GOVERNMENT contract recently?_____ What articles?_____

2. INFORMATION REGARDING WORKING CONDITIONS

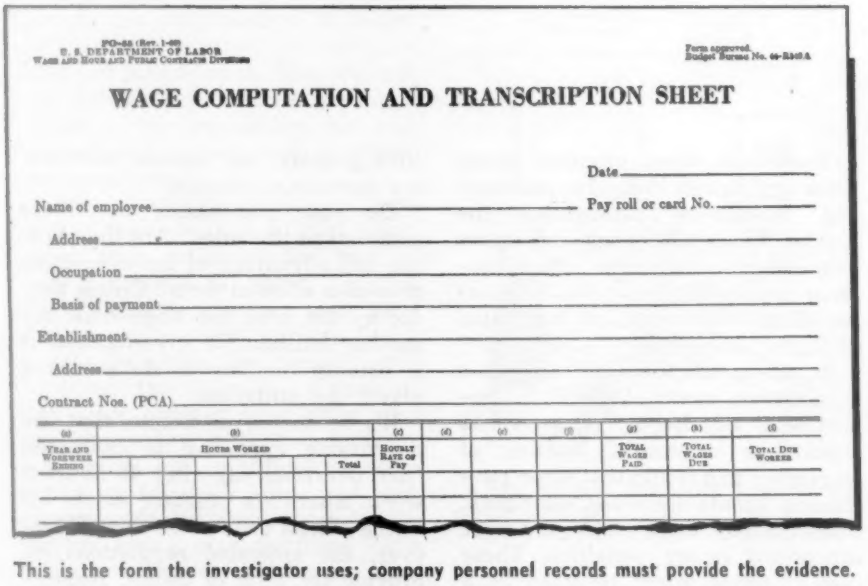
(a) Person furnishing information is _____
(Example: present employee, former employee, competitor, union, etc.)

(b) In what respect do you think that the establishment has failed to comply with the Federal Wage and Hour Law or the Walsh-Healey Public Contracts Act:

Minimum Wage ☐, Overtime ☐, Oppressive Child Labor ☐, Record Keeping ☐, Illegal Home Work ☐, Other ☐.

Describe: *(If additional space is needed, please use reverse side)*

Tips and complaints regarding possible wage-hour infractions originate from many sources.



FO-56 (Rev. 1-50)
U. S. DEPARTMENT OF LABOR
Wage and Hour and Public Contracts Divisions

Form approved.
Budget Bureau No. 44-R305.5

WAGE COMPUTATION AND TRANSCRIPTION SHEET

Date_____

Name of employee_____ Pay roll or card No._____

Address_____

Occupation_____

Basis of payment_____

Establishment_____

Address_____

Contract Nos. (FCA)_____

(a)	(b)								(c)	(d)	(e)	(f)	(g)	(h)	(i)
Year and Workweek Ending	Hours Worked							Total	Hourly Rate of Pay				Total Wages Paid	Total Wages Due	Total Due Workers

This is the form the investigator uses; company personnel records must provide the evidence.

this bothersome problem, and stay within the requirements of the Federal Wage-Hour Law, the employer should make sure that his answers are "Yes" to the following stipulations.

Section 13(a)(1) of the Fair Labor Standards Amendments exempts from the wage and hour provisions "any employee employed in a *bona fide* executive or administrative capacity." In other words, if a purchasing executive is harried by the problem, he should use the following quick check list to determine his exemption status.

1. *Executive Purchasing Agent* is one:

(a) whose primary duty consists of the management of the enterprise in which he is employed, or of a customarily recognized department or subdivision thereof; and

(b) who customarily and regularly directs the work of two or more other employees therein: and

(c) who has the authority to hire or fire other employees, or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight; and

(d) who customarily and regularly exercises discretionary powers; and

(e) who does not devote more than 20% of his hours worked in the workweek to activities which are not closely and directly related to the performance of the work described in paragraphs (a) through (d) of this section, provided that this paragraph (e) shall not apply in the case of an employee who is in sole charge of an independent establishment or a physically separated branch establishment, or who owns at least 20% interest in the firm in which he is employed; and

(f) who is compensated for his services on a salary basis at a rate of not less than $55.00 per week, exclusive of board, lodging, or other facilities; or

"Short test" applicable in lieu of above:

Provided, that an employee who is compensated on a salary basis at a rate of not less than $100.00 per week, exclusive of board, lodging, or other facilities, and whose primary duty consists of the management of the enterprise in which he is employed or of a customarily recognized department or subdivision thereof, and includes the customary and regular direction of two or more other employees, shall be deemed to meet all of the requirements of this section.

2. *Administrative Purchasing Agent* is one:

(a) whose primary duty consists of the performance of office or non-manual field work directly related to management policies or general business operations of his employer or his employer's customers; and

(b) who customarily and regularly exercises discretion and independent judgment; and

(c) who regularly and directly assists a proprietor, or an employee employed in a *bona fide* executive or administrative capacity; or who performs under only general supervision work along specialized or technical lines requiring special training, experience, or knowledge; or who executes under only general supervision special assignments and tasks; and

(d) who does not devote more than 20% of his hours worked in the workweek to activities which are not directly and closely related to the performance of the work described in paragraphs (a) through (c) of this section; and

(e) who is compensated for his services on a salary basis at a rate of not less than $75.00 per week, exclusive of board, lodging, or other facilities; or

"Short test" applicable in lieu of above:

Provided, that an employee who is compensated on a salary or fee basis at a rate of not less than $100.00, exclusive of board, lodging, or other facilities, and whose primary duty consists of the performance of office and non-manual field work directly related to management policies or general business operations of his employer's customers, which include work requiring the exercise of discretion and independent judgement, shall be deemed to meet all of the requirements of this section.

(*Please turn to page* 280)

To build departmental morale and efficiency...

Be A Good Boss

By David Markstein

PERHAPS you fancy yourself as an administrative officer, but the chances are that those who work under your supervision refer to you simply as "the boss". How good a boss are you? Can you get things done efficiently, without fuss and bother? Are your subordinates personally loyal to you, as well as to the company?

The tendency to work only as hard as is necessary to hold a job, to be satisfied with as little production as possible (and this takes in employees of every description) can be combatted only by intelligent management methods that make an employee *want* to do more.

Many purchasing agents have discovered that the right kind of "bossing" can make the cost curve of departmental operation turn downward. Here are a few suggestions on how to be a good boss, based on the experience of those who have put modern personnel management techniques to work.

Don't Carp

Constant criticism and petty nagging is no inducement toward doing better work. No man or woman likes to have somebody watching over his shoulder when he works; he likes even less to have each movement held up to criticism. Be sure that each worker understands what is expected. Then, only the finished job should be judged, not the steps by which it is achieved—except where they affect the work of others or are obviously inefficient.

Be A Friend

Being a friend doesn't mean that you have to invite employees to join you for a cup of coffee or a beer after knocking off work—unless you choose to do so. However, there are a number of concrete ways in which you can let them know of your friendly interest and make them like the company and yourself in a warm and personal way.

One executive made it a rule to know all of his employees by name, and to address a man as "Joe" rather than "Smith". The name denotes individuality. Every man likes to be called by name, not by the impersonal, nameless "you".

Then he took steps to learn something about each employee's private life. Being careful not to pry, he noted the casual information dropped in the course of a conversation, and soon came to have an intimate grasp of the man's personality, character, and tastes.

That information was important because each employee is an individual requiring individual handling. Knowing his men intimately, even though many had worked for him only a short time, this executive was able to achieve a more personal and friendly basis for running his department.

Save Face

Respect the dignity of the individual and never make an employee "lose face" among his associates if you want to maintain good morale.

One purchasing office had a valuable employee who had worked in the department for fifteen years; during this time, he had become almost indispensable. He quit in a huff, however, when the boss corrected him openly and pointedly for a minor infraction of company rules. The rebuke itself was justified and necessary, but the same call-down administered in private would have pointed out the consequences of his error and, in all probability, would have saved a valuable employee who proved extremely hard to replace.

Common Courtesy

Show the employee at least as much courtesy as you would show an important supplier. They appreciate having a "please" tacked on to an order and a "thank you" for accomplishment. The same type of discipline and ordering about that most of them disliked in military life—where courtesy words were very definitely omitted from the administrative vocabulary—will not be taken kindly in civilian jobs.

Encourage Judgment

Allow subordinates the fullest possible freedom in exercising their own judgment. First, train each person thoroughly in his job and the way you want it done; then, as much as you can, let him do the job unhampered. If he is properly trained, he'll do it the way you'd like it done. If he has a new twist or a new idea, let him work it out. Many plants and offices have found that the best operating procedures came from their employees' brains and hands when they were permitted and encouraged to use individual judgment.

Give Credit

Give credit where and when it is due, if you want to foster pride and satisfaction in the job to be done. Casual acceptance of accomplishment—or, worse, grabbing credit that some one else has earned—stifles effort and generates in employees an attitude of "I'm not paid to think, so I'll wait till the boss does it for me." Generously expressed appreciation can work an appreciable jump in the "will do" attitude of employees.

Work through Channels

If you have supervisors and section heads in your department, it's essential to build respect for their authority as well as for your own. One sure way to undermine the effectiveness of such organization is to issue important orders direct to their subordinates, leading to the belief that they are nothing but figureheads.

It has been said that a man will own up to any failing except the lack of a sense of humor. One other lack should be listed alongside that: the lack of administrative capacity. But where this is lacking, it must be faced—and it can be learned if one will take the trouble to remember a few basic principles and the techniques that go with them.

Recent Court Decisions Establish New Principles of Purchase Law

By Leo T. Parker

DURING the year 1953 the higher courts in different localities rendered several decisions especially important to purchasers who desire to eliminate expensive legal controversies. I shall briefly review the cause and outcome of these new decisions. Obviously, these new citations may be used advantageously by readers and their lawyers to win unavoidable law suits.

When Purchaser May Rescind Contract

Considerable discussion has arisen from time to time over the legal question: When and under what circumstances may a purchaser rescind a sale contract and demand refund of the purchase price of merchandise?

In the past higher courts have laid down law that any delay of a purchaser to return unsatisfactory merchandise to the seller within a "reasonable" period of time forfeits the purchaser's legal right to rescind the sale contract and recover the purchase price.

Other higher courts have held that a dissatisfied purchaser may recover the purchase price from a seller, if the purchaser proves that the seller breached the original sale contract and that he, the purchaser, redelivered the merchandise to the seller.

A new higher court decision modifies this usual law to an important degree, and held: The dissatisfied purchaser must prove positively that he returned the subject of the sale to the seller, or his authorized agent, otherwise he cannot recover a favorable verdict. This is so although the Uniform Sales Act broadly provides that a buyer, where there is a breach of warranty by the seller, may rescind the sale by returning the goods and may recover any part of the purchase price of which has been paid.

For illustration, in Goers v. Lorence, 110 N. E. (2d) 67, the testimony showed facts as follows: One

Goers purchased from a retail seller named Lorence a hearing device to be used on her right ear, for $175.00, and made payments thereafter aggregating $135.95. According to Goers' testimony the hearing device did not function properly. She visited the office on an average of once a week because voices were not distinguishable.

Afterwards the seller, Lorence, told Goers that the hearing device was made for the wrong ear. He made the necessary adjustments for the use of the device in Goers' left ear but the hearing device failed to aid her hearing. Approximately nine months later Goers returned the hearing device to the manufacturer, instead of returning it to Lorence from whom she made the purchase. There was no definite proof that Lorence ever received the unsatisfactory hearing aid. This is so although an employe of the manufacturer, named Barno, admitted that he had received the hearing aid from Goers.

Although the lower court held

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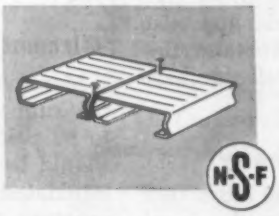

Engineering data on these products available upon request to the manufacturers.

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that Goers could recover from Lorence the full amount paid on the purchase price, the higher court reversed the verdict, and said:

"So far as the record shows, Barno was not an employe of defendant Lorence but was employed by the manufacturer of the device. Under the provisions of the foregoing statute proof of the return of the hearing device by plaintiff (Goers) to defendant (Lorence) is one of the essential elements of her cause of action and must be established by competent proof. Failure of the plaintiff to establish return of the hearing device to Lorence impels us to reverse the judgment."

With respect to whether Goers retained possession of the hearing aid too long a period to rescind the contract, the court said:

"Defendant (Lorence) says that plaintiff's (Goers') election to rescind the contract after a lapse of nine months is unreasonable. The question whether plaintiff (Goers) retained and used the hearing device longer than was reasonably necessary depends upon all the facts and circumstances. In the present case the plaintiff (Goers) testified that after receiving the hearing device she went to defendant's office on an average of once a week."

New Principles Established

Therefore, the legal effect of this new higher court decision is: First, under certain circumstances, as where a seller endeavors to make the subject of the sale satisfactory to the purchaser, and the purchaser continues to bring the device to the seller for necessary repairs, the purchaser may delay indefinitely in returning the merchandise to the seller and demanding refund of the purchase price. Also, unless the purchaser proves positively that he delivered the merchandise to the seller, or an authorized agent, there are no circumstances under which the purchaser can expect a favorable verdict.

This is so although, as disclosed in the above case, the purchaser delivers the unsatisfactory merchandise or device to the manufacturer who sold it to the ultimate seller. This is so also, because the original sale contract was between the purchaser and the retail seller, and the purchaser's right to recover the purchase price he paid to the retail seller in no wise concerned the manufacturer.

Nevertheless, it may be decided, under special circumstances, that if the testimony proves that the manufacturer redelivered the unsatisfactory merchandise to the original seller and communicated to this original seller the demands made by the purchaser, there may be sufficient legal relationship as between the manufacturer, original retail seller, and the purchaser, to result in a valid delivery and demand for refund personally by the purchaser to the original seller.

However, in order to avoid complications, and uncertain legal results, it is wise and desirable that the purchaser deliver back unsatisfactory merchandise directly to his original seller, and have proof that such delivery was made and also that at this time the purchaser demanded return of the full purchase price.

Damages vs. Penalty

Considerable discussion has arisen from time to time over the legal question: "Is a contract valid which specifies the amount of money a purchaser will pay a seller if the former breaches a sale contract?"

Early this year, a higher court clearly answered this question, holding that if the amount stipulated is a penalty it is void, but if liquidated damages it is valid. In other words, a provision in a contract is valid by which a purchaser agrees to pay a reasonable amount of money as liquidated damages, if he breaches the contract, but where the amount as specified is unreasonably large and not close to the amount of damages actually suffered by the seller, as a result of the purchaser's breach, the courts refuse to hold valid a penalty for the breach. This rule of law is applicable to sale contracts, leases, and all other contracts.

To determine whether a sum named in a contract is intended as a penalty or as liquidated damages, it is necessary to look to the whole instrument, its subject matter, the ease or difficulty of measuring the breach in damages, and the amount of the stipulated sum, not only as compared with the value of the subject of the contract, but in proportion to the probable consequences of the breach, and also to the intent of the parties ascertained from the instrument itself in the light of the particular facts surrounding the making and execution of the contract.

Also the courts hold that where the parties have agreed on the amount of damages, ascertained by estimation and adjustment, and have expressed this agreement in clear and unambiguous terms, the amount so fixed should be treated as liquidated damages and not as a penalty, if the damages would be (1) uncertain as to amount and difficult of proof, and if (2) the contract as a whole is not so manifestly unconscionable, unreasonable, and disproportionate in amount as to justify the conclusion that it does not express the true intention of the parties, and if (3) the contract is consistent with the conclusion that it was the intention of the parties that damages in the amount stated should follow the breach thereof.

Circumstances Are Considered

Moreover, in determining whether the sum mentioned in the contract to be paid in the event of a breach should be treated as a penalty or as liquidated damages, the court must construe the contract in the light of the situation of the parties at the time of the execution of the contract.

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For example, in Jolley v. Georgeff, 110 N. E. (2d) 23, the testimony showed facts as follows: A seller and a buyer entered into a written contract whereby the seller agreed to install an automatic phonograph or "juke box" in the buyer's place of business. The contract provided that the seller should have the exclusive right to install and operate an automatic phonograph and other musical instruments in the purchaser's place of business for a period of five years.

In the event of the breach of the contract by the purchaser the contract provided: "Should merchant (purchaser) fail to perform the terms of this agreement, merchant (purchaser) agrees to pay operator (seller) the price of the instrument stated above as damages to operator." The contract provided that the phonograph and the attachments were priced at $1,000.00.

About eight months prior to the expiration of the five year period, during which the contract was to be in effect, the purchaser demanded in writing that the seller remove the instrument.

In other words, after the purchaser had paid the seller rentals on the machine for approximately four years and four months of the five year term of the contract, the seller demanded that the purchaser pay $1,000.00 as liquidated damages. The higher court promptly held the $1,000.00 to be a penalty and therefore the purchaser need not pay it. This court said:

"It is our opinion that the damage clause provided for the payment of an amount in the event of the breach of any of the terms of the contract; that such amount was an arbitrary one and was not arrived at by calculation or adjustment by the parties in an attempt to determine what the damages would be in the event of a breach and that the price of the instrument bears no reasonable relation or proportion to the damages which may be suffered as a result of the breach. By applying the tests enumerated we conclude that the sum stipulated was a penalty and not liquidated damages."

Construing Original Contract

For comparison, see Miller v. Blockberger, 111 Ohio St. 798, 146 N. E. 206. This court said:

"In determining whether the sum provided in a contract to be paid in the event of its breach is liquidated damages, or a penalty, a court will construe the contract in the light of the situation of the parties at the time of the execution of the contract, and from that position will determine whether the damages which would be sustained by reason of the breach could, at the time of the execution of the contract, have been easily and approximately ascertained; and, in determining whether they were so ascertained, will compare the amount stipulated with the amount of damages which would probably result from the breach, and if there is such discrepancy between the sum stipulated and the damages which would probably and naturally result from the breach, the sum stipulated will be held to be 'penalty' rather than 'liquidated damages'."

Seller's Ordinary Liability

Circumstances may exist under which it is not possible or even desirable to the purchaser that he return unsatisfactory merchandise to a seller. Under these circumstances the courts agree that the purchaser may sue the seller and recover actually sustained damages. A good and dependable rule of law is: The measure of damages for breach of a warranty is the difference between the value of the goods as they were, and the value they would have had if the seller had delivered goods equal to his warranty or guarantee. This rule of law is applicable to both expressed and implied guarantees.

For example, in Drager v. Carlson Hybrid Corn Company, 56 N. W. (2d) 18, the testimony showed facts as follows: A buyer agreed to buy from a seller at the agreed price of $3.50 per bushel, 3,290 bushels of seed corn. This seed corn was agreed to be hybrid seed corn, which impliedly warranted it to be reasonably suitable for retail sale as seed.

In subsequent litigation the purchaser sued the seller for heavy damages, alleging that a considerable portion of the corn—1,410 bushels—was unsuitable for resale as hybrid seed corn, and its only value was for sale as feed. If the corn had been suitable for seed it would have been worth $10.00 per bushel but, being unsuitable for seed, it was not worth more than $1.10 per bushel and consequently the purchaser claimed that he was damaged to the extent of $12,549.00.

In this case the purchaser proved that he relied on the seller's good judgment to supply suitable seed corn. In this respect, the court held:

"It is not necessary that the buyer testify in so many words he relied on the seller's skill or judgment. Reliance may be shown by the circumstances of the case. The buyer's reliance on the seller need not be a total reliance. The buyer may rely on his own judgment as to some matters and on the seller's skill and judgment as to others."

The lower court awarded the purchaser damages equal to the full value of 1,410 bushels of corn on the basis of the seller's price of $3.50 per bushel paid by the purchaser to the seller. However, the higher court revised this judgment and held that the proper amount of damages allowable the purchaser was $3.50 per bushel less the $1.25 per bushel for which the corn could have been sold for feed purposes. The court said:

"There is testimony the market value of the corn unfit for seed was $1.25 per bushel. If the unfit corn were worthless, defendant (purchaser) would be entitled to such

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maximum relief as to so much of the corn. However since the corn unfit for seed admittedly has a substantial market value for feed, it is only just that defendant (purchaser), if it keeps the corn, should be liable for such value. So defendant here is entitled merely to diminuation, not extinction, of the price of the unfit corn. Obviously the relief to which defendant (purchaser) is entitled because of the delivery of unfit corn should not exceed that to which it would be entitled if such corn had not been delivered at all.

Uncertain Damages

Modern higher courts consistently hold that a recovery of damages through a lower court, for breach of a contract, must be based on actual facts, otherwise the higher court will reverse the verdict. In other words, the higher courts hold that damages are recoverable for losses caused or for profits and other gains prevented by the breach only to the extent that the evidence affords a sufficient basis for estimating their amount in money with reasonable certainty. Hence, the fact that a person earns a definite profit during one stated period, will not justify an award of damages for several years on the same basis.

For example, in Schoenberg v. Forrest, 253 S.W. (2d) 331, the testimony showed facts as follows: One Forrest was given a 20 year general sales agency for the eastern part of the United States for the selling of a product manufactured by the Schoenberg Company and known as Collar-Bobs. A Collar-Bob is a device for fastening the points of a shirt collar to the front of the shirt. A pin about three-eighths of an inch long goes through the collar point and the shirt and is fastened on the underside with a little spring-action clutch. The contract was terminated by Schoenberg, and Forrest sued for damages alleging that Schoenberg had illegally cancelled the agency contract.

During the trial Forrest testified that he had netted about $374.62 per month during the 8 month period, during which he sold the device. He proved that gross amounts received upon sales commissions for the eight months of 1948 were as follows: January, $1,458.17, February, $1,150.90, March, $1,931.69, April, $1,218.90, May, $1,890.39, June, $951.62, July, $752.22, and August, $309.76, a total of $9,663.65 for eight months or two-thirds of a year, Forrest's estimate of expenses was $100.00 per week or $3,466.67, for two-thirds of a year. According to these figures, Forrest received approximately $774.62 more from commissions that he paid out in expenses.

In view of this testimony the jury awarded Forrest $123,200 for breach of the contract, which was for a 20 year period.

The higher court reversed the verdict, saying:

"The most serious defect in appellee's (Forrest's) proof, and one which is fatal to the judgment, is the failure to establish facts from which it could reasonably be inferred that profits over the contractual period of twenty years would be realized. Probable change in economic bases and conditions, as well as the uncertainties and cycles of clothing and apparel styles are involved. When we consider the nature of the business as shown by the undisputed evidence, one can hardly say that a showing of profit in 1948 indicates that a profit will in all probability result from operations in the year 1967, or the year 1957, for that matter."

For further discussion of this important subject of law see Williston on Contracts, 1345-1345a-1346; Corbin on Contracts, 1020-1028, and Battery Corporation v. Owen, 115 S. W. (2d) 1097, contain an extensive collation of authorities upon the law.

Purchaser Must Pay Sales Tax

A legal question of considerable importance is: "If a seller neglects to include in a purchaser's invoices or bills the amount due the state for sales tax, can the seller later sue the purchaser and recover this amount? Another question is: Can a purchaser offset a tax claim of this nature by claiming damages for the seller's breach of the sale contract?"

According to a late higher court decision, the answer to both questions is yes. This court held, however, that the purchaser may offset the amount he owes for taxes by collecting from the seller damages allowable for breach of a warranty.

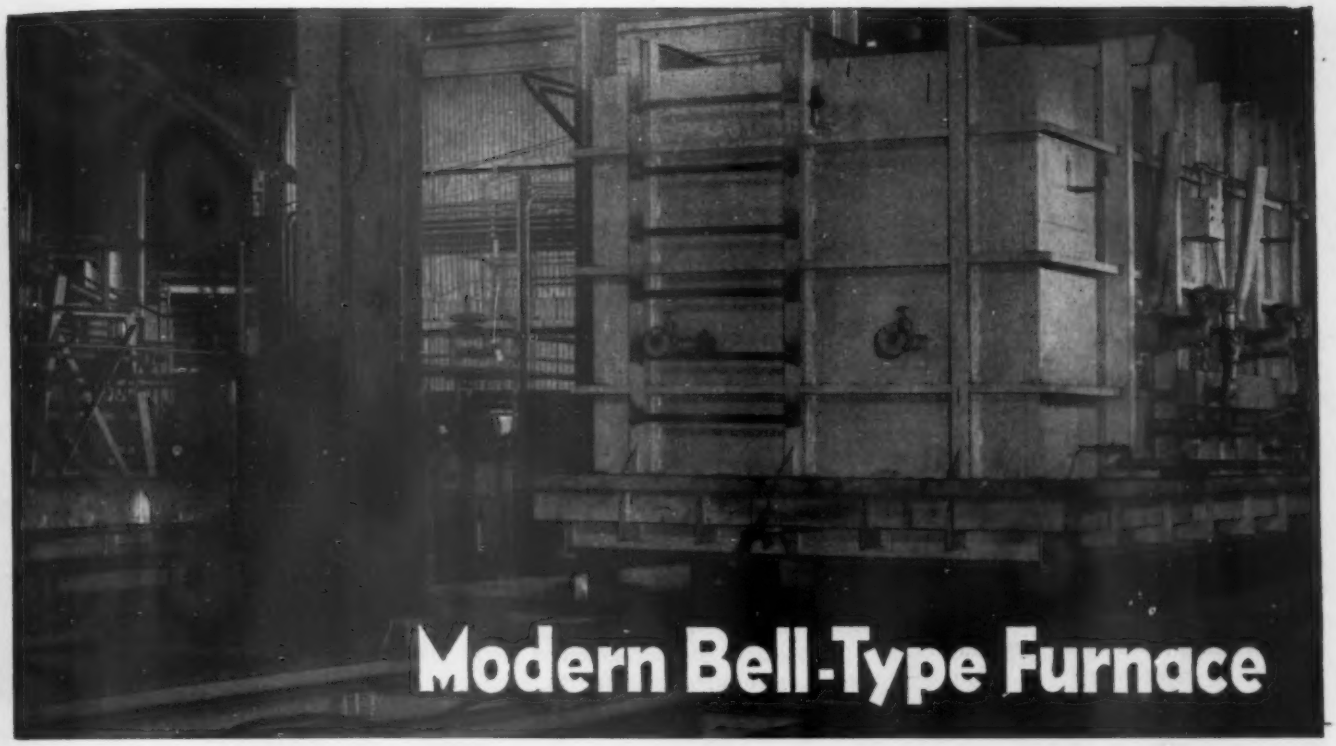
For example, in Selected Investments Corp. v. International Trading Syndicate, 251 Pac. (2d) 502, it was shown that for many months a seller of plumbing supplies overlooked including the 2% sales tax on the invoices mailed to the purchaser. Therefore, the purchaser did not pay the sales tax. Merchandise to the amount of $72,451.27 was purchased by the purchaser from the seller. Thus, the purchaser owed the seller $1,449.02 back taxes, because the seller was obligated to pay this amount to the state.

After expiration of nearly three years, the seller sued the purchaser for this amount, although it was admitted that the purchaser would have paid the sales tax when it became due if the seller had not neglected to include the sales tax in purchaser's invoices.

The higher court held the purchaser liable for payment of the back taxes. Then the purchaser filed a counter suit for twenty-two sinks of the value of $339.90 and twenty-four bath tubs of the value of $1,711.30, all alleged to be defective and non-conforming to samples furnished and comprising a breach of the seller's warranty.

Counterclaims Are Sustained

The higher court held that the purchaser could maintain this counterclaim to offset the amount owed by the purchaser to the seller for



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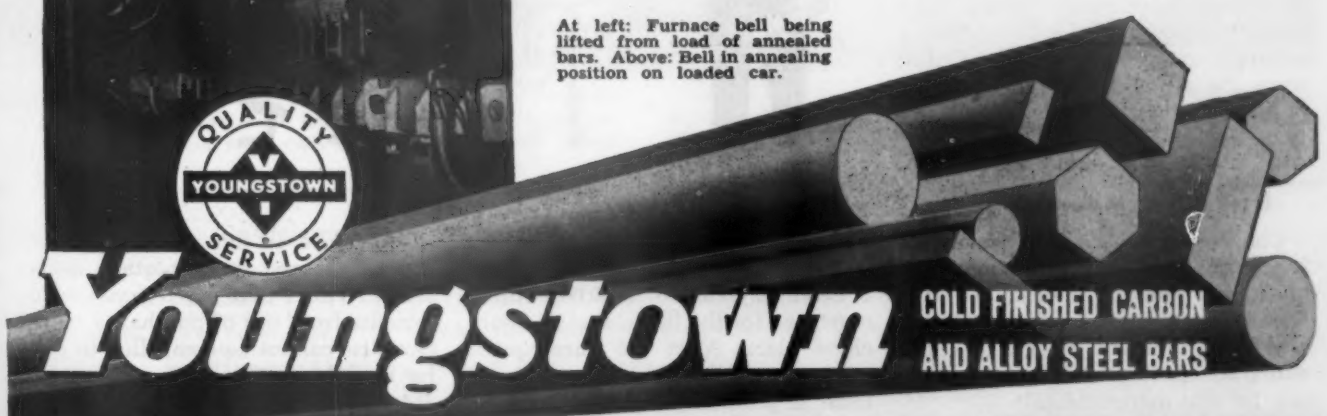

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delinquent sales taxes. The court said:

"The omission of the seller to include this tax in the invoice would seem to be almost identical with a situation where the seller omitted to include one of the items of merchandise in the billing. If a charge for an item of merchandise had been omitted from one of the invoices it would not be seriously contended that a counterclaim for breach of warranty as to other items could not properly be litigated in a suit on the account. Assuming that the situation were reversed, certainly the seller of the goods could plead as a counterclaim any unpaid sales tax on the invoices in question."

For comparison, see Watson v. American Creosote Works, 84 P. (2d) 431. Here the court held that a counterclaim, whatever its nature, might be maintained by the purchaser if it arose out of or was connected with the cause of action of the seller.

Considering a counterclaim for a breach of warranty of fitness in Hales-Mullaly, Inc. v. Cannon, 119 P. (2d) 46, the court held that such a counterclaim might be asserted in a replevin action. And, as pointed out in Keenan v. Clark, 211 P. (2d) 260, a counterclaim growing out of the transaction on which the purchaser's claim if founded may properly be maintained.

Therefore, these new higher court decisions clearly hold that when a seller sues a purchaser for money due and involving a sale contract, the purchaser may combine in the same suit his claim for money due as an incidental, remote or other cause connected with the original suit filed by the seller against the purchaser. In other words, the purchaser is not required to file a separate suit for the amount due from the seller, but both questions of law may be submitted to the court in a single action or suit.

User is Liable for Payment

Considerable discussion has arisen from time to time over the legal question: Can one who comes into possession of merchandise without any fraud, unlawful design, or other effort on his part be compelled to pay for the merchandise?

Such a situation may arise, for example, when through error a carrier delivers merchandise to a purchaser who did not order the merchandise and did not know it was delivered and stored in his warehouse, and did not want, although the purchaser's agent accepted the delivery. Also, a similar situation may arise when a purchaser's employee or agent actually purchases merchandise without knowledge or authority of the purchaser, and delivery is made with or without knowledge of the purchaser.

Another similar situation may arise where a purchaser purchases merchandise which is delivered to him, and afterward another person gets possession of the merchandise and uses it without knowledge of the owner of the property on which the merchandise is stored.

Tenant Installs Fixtures

These various points of law, and other additional and important questions of law were decided by a late higher court decision.

In this case the higher court rendered an unusually important decision holding that (1) a tenant who installs equipment in a house, without authority of the house owner, is personally liable for payment of the fixtures although he did not purchase same, and (2) the house owner is not liable for payment.

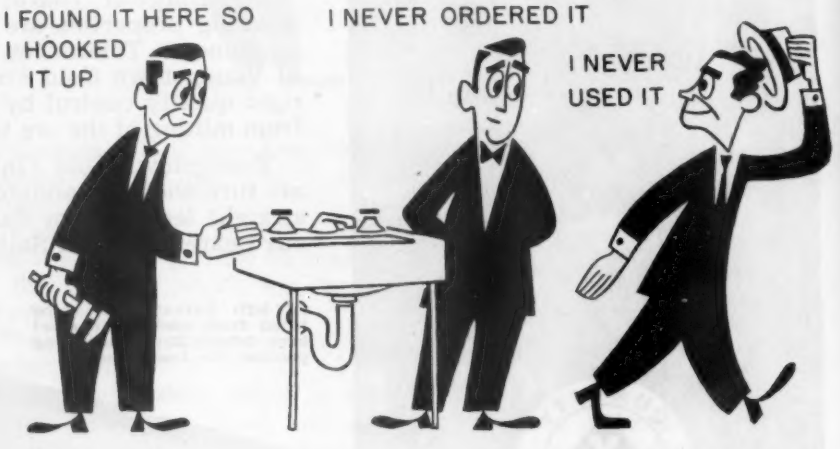
For example, in Wagner v. Blanken, 250 Pac. (2d) 464, the testimony showed these facts: A person named Wagner purchased a home from one Blanken and made a down payment of $600.00, with a mortgage for the balance of the purchase price. After the purchase of the house, Wagner bought on credit from a plumbing company a bath tub, toilet, sink, water heater, septic tank, and pipe and accessories. Before these articles were installed, he discovered that he was unable to complete the purchase of the house, and moved out. He had not paid for the plumbing fixtures. Later a tenant named Edwards moved into the house and installed the plumbing fixtures. The seller sued to recover the purchase price of the plumbing fixtures.

As to Blanken, the owner of the house, the higher court held, first, that since Blanken had not purchased the equipment and had not ordered his tenant to install the fixtures in the home, Blanken could not in any event be held liable for payment. The court said:

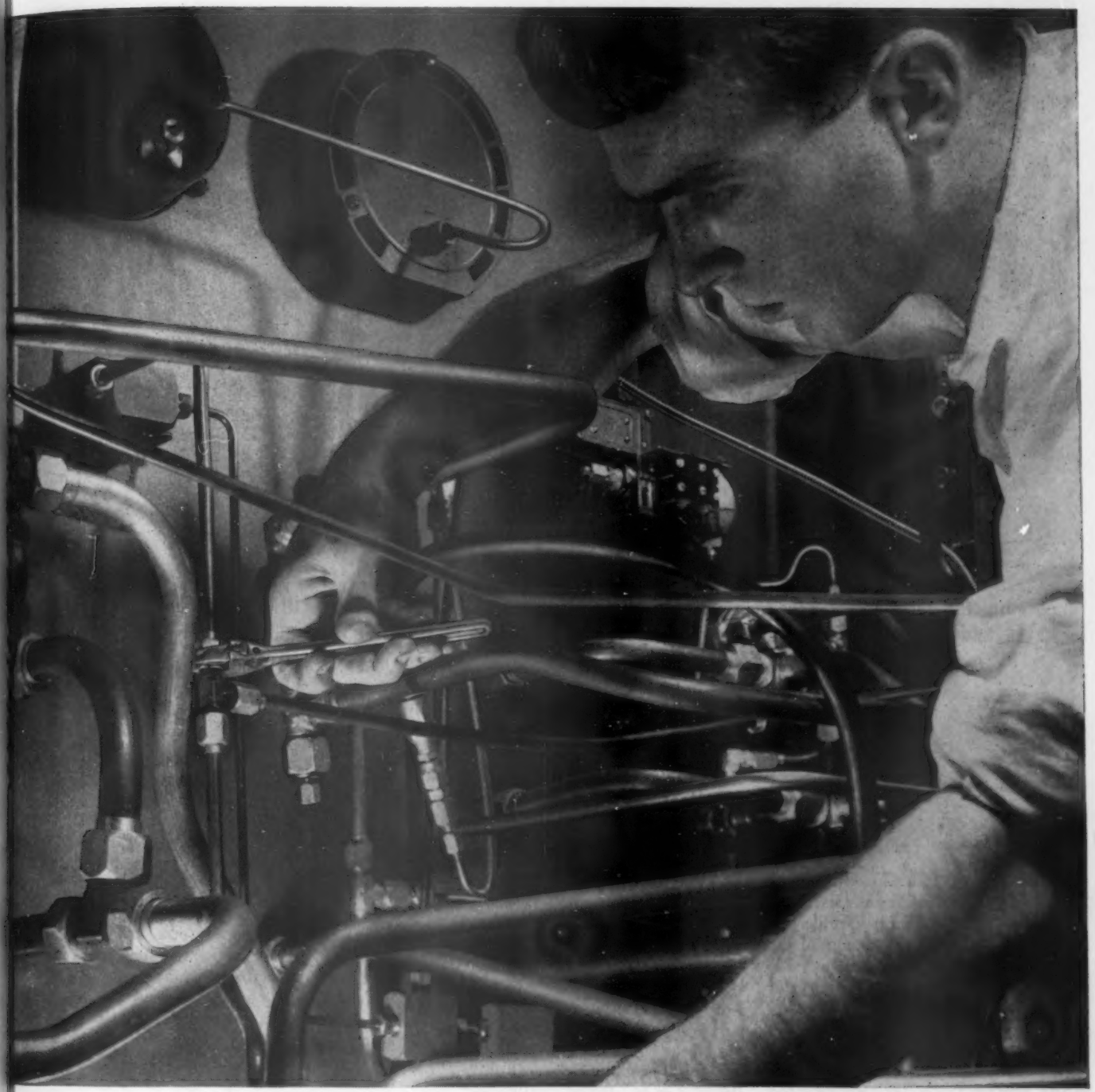
"There is no doubt that Edwards converted this equipment by installing it in the house owned by Blanken in which Edwards was living. There is nothing to show that Blanken agreed to this or authorized it in any way. Certainly Edwards could not force a sale of this plumbing equipment on Blanken by attaching it to Blanken's house.

As to the tenant Edwards, the higher court held that he would be liable for payment, and said:

"In this case there is no question but that Edwards converted these plumbing fixtures wrongfully to his own use and benefit. True, it was not his property to which the fixtures were attached; but he was a tenant in the house and enjoyed the use of the fixtures so long as he was a tenant therein."



Therefore, in this case the higher court rendered an important decision in effect that a purchaser who benefits from use of purchased merchandise cannot be compelled to pay for it, if the testimony shows that he did not purchase the merchandise and did not authorize the particular use of the merchandise from which he benefitted. This law is broadly applicable to all purchasers, irrespective of the beneficial uses of the merchandise.



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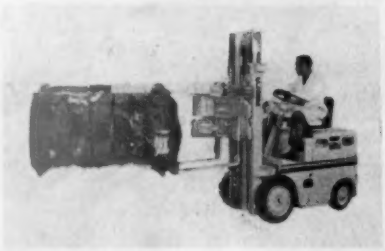
New York, N. Y.	Nielsen Hydraulic Equipment, Inc. 5 Penn Place, Pelham Manor 65
New York 14, N. Y.	Whitehead Metal Products Co. 303 W. 10th St.
Odessa, Tex.	Snyder Co., Inc. 2604 Kermit Highway
Philadelphia, Pa.	Louis H. Hein Co. 15 W. Lancaster Ave., Ardmore
Philadelphia 40, Pa.	Whitehead Metal Products Co. 1955 Hunting Park Ave.
Pittsburgh 33, Pa.	Williams & Co. 901 Pennsylvania Ave.
Portland 10, Ore.	Hydraulic Power Equipment Co. 2316 N. W. Savier St.
Roanoke 10, Va.	Noland Company 1226 Center Ave. N. W.
Rockford, Ill.	Rockford Tool & Transmission Co. 802 Broadway
Salt Lake City 4, Utah	Pace-Turpin & Co. 726 South Third West
San Francisco 3, Cal.	General Machinery & Supply Co. 1346 Folsom St.
Seattle 9, Wash.	Palmer Supply Co. 222 Westlake North
Shreveport, La.	Standard Brass & Mfg. Co. 1557 Texas Ave.
St. Louis 15, Mo.	Metal Goods Corp. 5239 Brown Ave.
Syracuse 4, N. Y.	Whitehead Metal Products Co. 207 W. Taylor St.
Tampa, Fla.	Florida Metals, Inc. 222 N. 12th St.
Toledo 2, Ohio	Williams & Co. 650 E. Woodruff Ave.
Tulsa, Okla.	Ardun Supply Co. 303 S. Frankfort
Tulsa 3, Okla.	Metal Goods Corp. 302 N. Boston
Export	Mercator Corp. 438 Walnut St., Reading, Pa., U.S.A.

New Products Ideas

Clamp Permits Selective Tiering and Removal of Loads

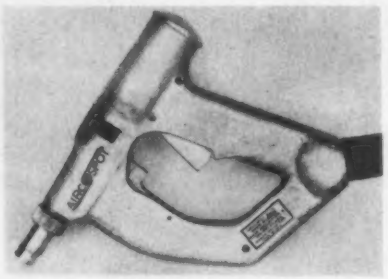


Clark Equipment Co., Industrial Truck Div., Battle Creek, Mich., offers a swinging clamp device for selective tiering and removal of loads. It can reach out to either side of a narrow aisle to grasp or tier loads behind material already stacked. It is available for use with all gas and electric-powered Carloader models of fork lift trucks. While the unit can be also adapted for heavier machines, the maximum capacity for the attachment is 600 lb, regardless of truck capacity. The clamp device, designed for use where aisle space is at a premium, has a full 180° traverse.

Heavy Duty Safety Wheel Block

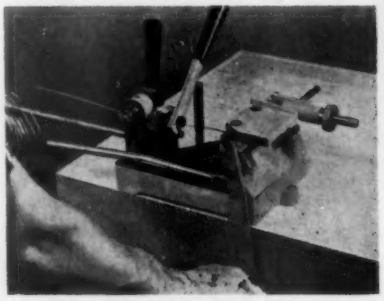
A heavy duty safety wheel block, made by Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind., is 14″ high and has a 15″ x 10″ base to provide maximum stability and holding power for blocking unusually heavy vehicles and loads. Cast in one piece from high strength alloy steel, it provides positive holding on any surface, including ice, wet pavement, packed clay, etc. Its 14″ height and large base prevent a vehicle from rolling up over, or pushing it into the ground, regardless of the weight of the vehicle or the condition of the grade.

Lightweight Spot Welding Gun Uses No Jigs or Fixtures



A lightweight spot welding gun, using a 3/32″ non-consumable thoriated tungsten electrode and an inert-gas shield is now available. It makes instantaneous welds on stainless steels, mild steels and alloy steels, without the use of jigs or fixtures. The unit consists of a hand gun, control panel and all necessary hose and cable assemblies. In order to use the unit, a standard d-c power source, either motor generated set or rectifier type of machine is required. The gun is water-cooled, and uses helium or argon, or a mixture of the two, for a shield. It is rated at 250 amp and welds metal sheet up to ⅛″ thick. Further information may be had from Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.

No Skill Needed to Operate Spring Winding Machine



A new spring winding machine can be operated without any experience or special skill. The machine is described as a complete self-contained unit with a special cut-off lever incorporated. Designed to eliminate special orders or costly delays, it can be used to form individual springs, or to replace automatic machines on short run production. The spring winder is ready for operation as soon as it is mounted on a bench or in a vise. Any gage wire, to ⅛″ diam, can be wound into extension, compression, torsion and flat springs. Made by O'Neil Irwin Mfg. Co., 601 Eighth Ave., Lake City, Minn.

Formed Wire Products

Round Chain Companies, Broadway & Chaincraft Rd., Cleveland 5, Ohio, have added a line of formed wire products for industrial and other use. The line includes turnbuckles, eye-bolts and U-bolts,

(*Please turn to page* 134)

Spectrum of core wire sample is obtained by arcing the wire, producing a photographic record of the spectral lines of the various elements present.

The resulting spectrogram quickly and accurately determines whether or not core wire composition matches specifications.

Final proof of quality

IN STAINLESS ELECTRODES

SPECTROGRAPHIC ANALYSIS IS THE FINAL STEP IN A. O. SMITH'S QUALITY CONTROL

What does this mean to you as a buyer or user of stainless welding electrodes? It means that in A. O. Smith Certified Stainless Electrodes you have top-flight laboratory assurance that they meet your specifications *exactly*.

No other electrode producer subjects incoming stainless core wire to the exacting laboratory program of tests as performed at A. O. Smith. This is because the production of critical stainless vessels in our own shops requires these tests to make sure of top-quality welds.

Exacting chemical, metallurgical and, finally, spectrographic analyses are made of both ends of all coils of core wire. "Tramp" steel is immediately detected and coils in which it is found are rejected. Only coils that pass the control program are made into electrodes. Here are some of the controls:

- No more than one splice is permitted in any incoming coil.
- Samples are clipped from each end of each coil for analysis. No part of any coil can escape testing.
- When approved coils are straightened and cut, the wire is immediately sealed in boxes to prevent mixing of lots.

You receive this assurance of highest quality in A. O. Smith stainless without paying any premium. *Insist* on A. O. Smith electrodes every time.

We'll gladly demonstrate them on your job. Write for free pocket-size electrode handbook. Address: A. O. Smith Corporation, Welding Products Division, Dept. P-154, Milwaukee 1, Wis.

A. O. Smith Certified Stainless Electrodes ALL-POSITION

D.C. Electrodes	AISI Type
SW-151	502
SW-152	505
SW-153	410
SW-154	430
SW-157	347
SW-158	317+Cb 318
SW-159	310
SW-160	316
SW-161	317
SW-162	308
SW-166	309
SW-168	310+Mo
SW-169	310+Cb
A.C.-D.C. Electrodes	
SW-357	347
SW-359	310
SW-362	308

Available through A. O. Smith Welding Products Distributors

Made by welders . . . for welders

A.O.Smith CORPORATION

WELDING PRODUCTS DIVISION, MILWAUKEE 1, WISCONSIN
INTERNATIONAL DIVISION, MILWAUKEE 1, WISCONSIN, U.S.A.

Above: A few of the wide variety of TEFLON packings and gaskets manufactured in the Garlock factories. *Right:* Sheets of TEFLON being removed from a special electric sintering oven after curing at 700°F.

Contact GARLOCK for Packing, Gasketing-- And Other Products

Made of Teflon# or KEL-F†

Garlock's modern plastics plant is equipped to manufacture many types of products from TEFLON and KEL-F. Here is a partial list of popular plastic products available from Garlock.

	KEL-F	TEFLON
PACKINGS for valve stems, rods, shafts		
CHEVRON* packing, "O" rings, V rings	X	X
Braided ribbon or braided yarn (a new closely woven braid)		X
Asbestos with TEFLON impregnation		X
Mechanical seals with TEFLON sealing components		X
GASKETS AND SHEET PACKINGS		
Ring gaskets or envelope type with fillers	X	X
Slip-on gaskets for glass pipe		X
Spiral wound metal gaskets		X
Large sheets (KEL-F 48" dia.-TEFLON 48" square)	X	X
DIAPHRAGMS—DISCS—RODS—SLEEVES	X	X
TAPE—electrical and general purpose grades		X
MOLDED AND MACHINED PARTS for various purposes	X	X
FILLED COMPOUNDS: calcium fluoride, copper and others		X

For any product made of KEL-F or TEFLON, contact our sales office nearest you or write us direct.

THE GARLOCK PACKING COMPANY, PALMYRA, NEW YORK

Sales Offices and Warehouses: Baltimore • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Cleveland Denver • Detroit • Houston • Los Angeles • New Orleans • New York City • Palmyra (N.Y.) • Philadelphia Pittsburgh • Portland (Ore.) • Salt Lake City • San Francisco • St. Louis • Seattle • Spokane • Tulsa.

In Canada: The Garlock Packing Company of Canada Ltd., Toronto, Ont.

*Registered Trademark #The Du Pont Company's Trademark
†The Kellogg Company's Trademark

GARLOCK

PACKINGS, GASKETS, OIL SEALS
MECHANICAL SEALS
RUBBER EXPANSION JOINTS

(*Continued from page* 132)

screw eyes and lag screws, S and 8 hooks, household fittings, and cup and shoulder hooks. Turnbuckles, eye-bolts and U-bolts are available in assortments with metal wall-type merchandisers.

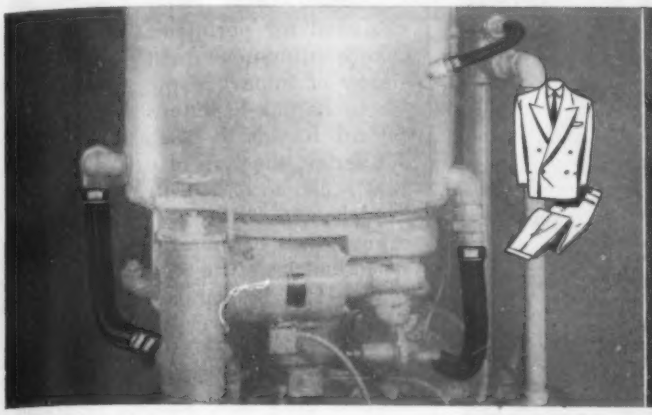
Lift Truck Dump Attachment Eases Spotting, Ends Lift Loss

A new hydraulic dumping attachment for Yale fork trucks, permits controlled dumping at any height up to the maximum lift range of the truck and without loss of lift. Yale & Towne Mfg. Co., Yale Materials Handling Division, Philadelphia, Pa. designed it for use with drop bottom boxes. The attachment hydraulically raises the rear end of the box through a hook engagement, independent of fork action. Since the forks and the front of the box bottom are at the same height while dumping the load, the exact spilling position can be maintained at all times and the load can be raised to the maximum height of the lift.

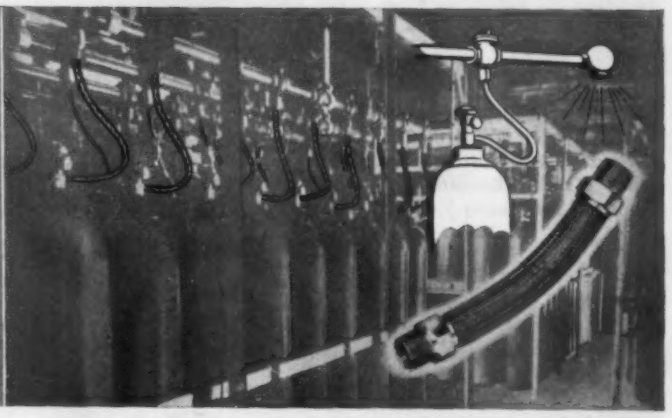
Manual-Reset Thermostat

A thermostat designed primarily as a high limit cutout that instantly snaps off at a predetermined temperature is now available from Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa. This manual-reset uni-therm will not remake until the user or serviceman pushes the reset button. Its quick thermal response makes this low-cost thermostat suitable for use on any appliance that calls for high temperature protection. Metal-to-metal contact with the heated surface minimizes the differential between the operating and bi-metal temperatures. It can be had in both a-c and d-c ratings, calibrated to 550 F.

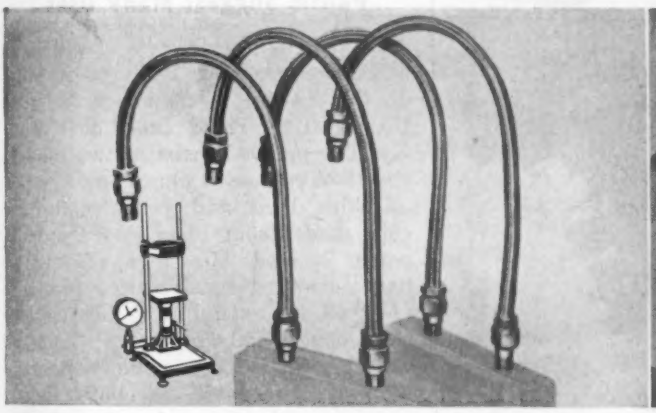
Pick an idea—lick a design problem...



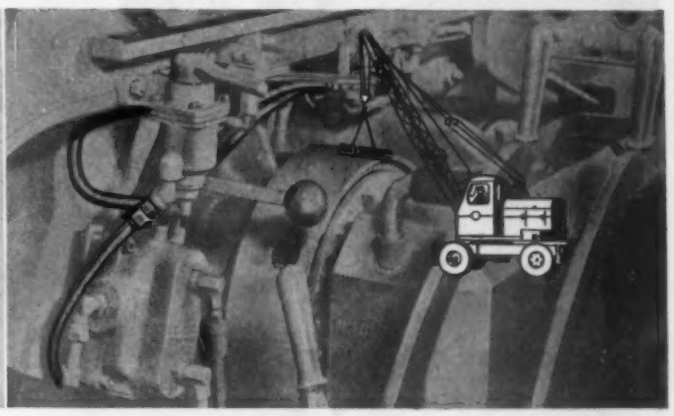
END VIBRATION AND LEAKAGE. Titeflex® metal hose, used as fill and drain lines of SEC Synthetic Cleaning Units, kills vibration and prevents solvent leakage at fittings. Tough, wear-and-corrosion-resistant Titeflex is just as effective in handling steam, oil, lubricants, fuels, gases, brine, acids, compressed air or oxygen. Design and construction of Titeflex assure trouble-free performance. Excellent for projects involving extreme configurations.



CONTROL CRITICAL PRESSURES. How would you connect 280 cylinders of fire-extinguishing carbon dioxide at 850 psi to line? Walter Kidde & Company licked this problem with Titeflex flexible metal hose which met all insurance standards and withstood rigid application requirements. Titeflex also conveys hundreds of different fluids under as many different temperature and pressure conditions. Resists corrosion, vibration, physical abuse.



CONDUCT STEAM SAFELY. Plates for Carver Laboratory Press carry steam up to 200 psi (nearly 400°F.) for heating—water for cooling. The connections are flexible, pressure-safe Titeflex. Braiding gives extra strength. Added problems of vibration, pulsation, continuous movement, corrosion or abrasion make Titeflex invaluable in scores of other applications.



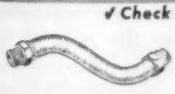
FIGHT FATIGUE AND WEAR. Titeflex metal hose eliminated maintenance on air control lines of Unit Mobile Cranes. All-metal construction, with braiding woven directly upon the hose, provides great strength and resistance to vibration, corrosion, wear and abuse. Flexibility of Titeflex permits simplified assembly even where space configurations are problems.

THE USES FOR TITEFLEX® seamed flexible metal hose and Uniflex seamless flexible metal hose are limited only by engineering ingenuity. And Titeflex design engineers—working *with* customers—develop new applications daily. Somewhere in your plant or on your products Titeflex can improve operation and maintenance—or simplify a design problem. Our *new 48-page Metal Hose Catalog* No. 200 shows you how and why. To get your free copy, simply mail the coupon.

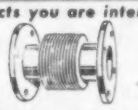
Let Our Family of Products Help Yours

Titeflex

✓ Check products you are interested in.



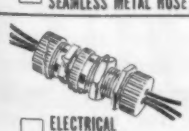
☐ SEAMED AND SEAMLESS METAL HOSE



☐ PRECISION BELLOWS

☐ IGNITION HARNESS

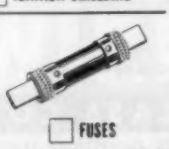
☐ IGNITION SHIELDING



☐ ELECTRICAL CONNECTORS

☐ RIGID AND FLEXIBLE WAVE GUIDES

☐ WIRING SYSTEMS



☐ FUSES

TITEFLEX, INC.
513 Frelinghuysen Ave.
Newark 5, N.J.

MAIL COUPON TODAY

Please send me without cost information about the products checked at the left

NAME _____

TITLE _____

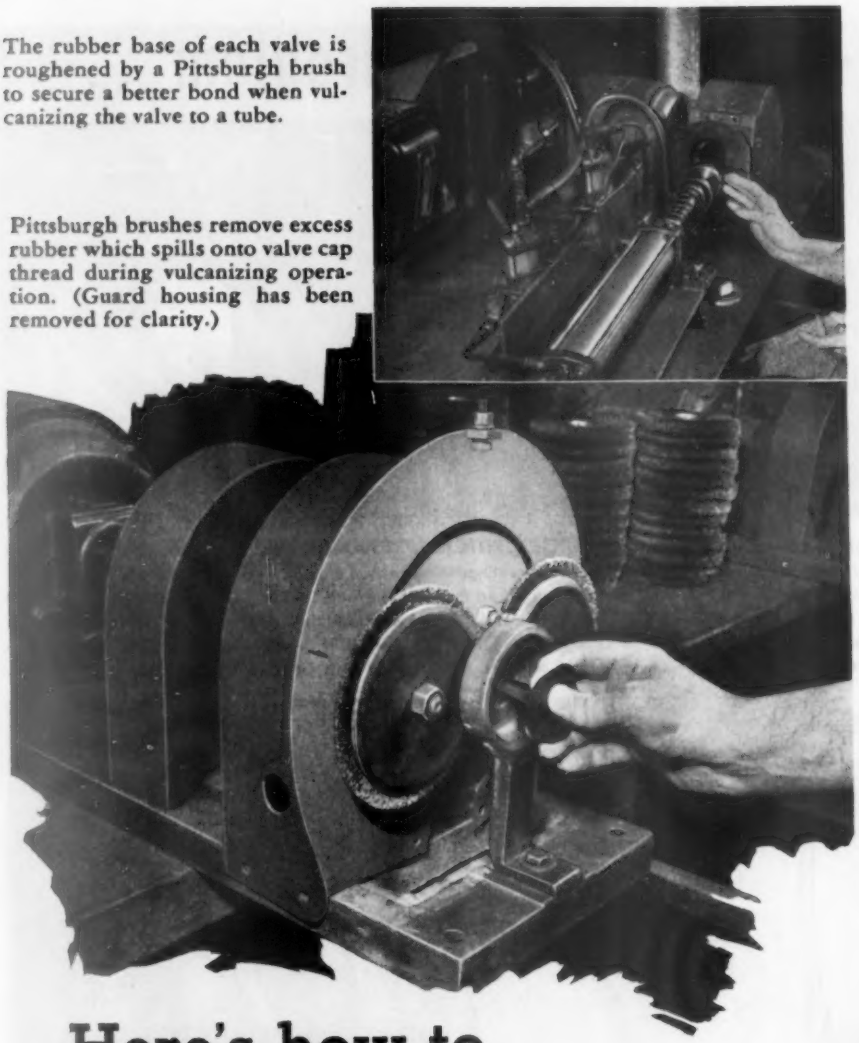
FIRM _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____

The rubber base of each valve is roughened by a Pittsburgh brush to secure a better bond when vulcanizing the valve to a tube.

Pittsburgh brushes remove excess rubber which spills onto valve cap thread during vulcanizing operation. (Guard housing has been removed for clarity.)



Here's how to brush rubber

A. Schrader's Son, Brooklyn, New York, uses Pittsburgh brushes in the production of tire valves for leading tire manufacturers. In one operation, two brushes remove the excess rubber which flows around the valve threads during the vulcanizing process—750 valves per hour are cleaned in this manner!

Another Pittsburgh brush on a buffing machine roughens the rubber base of the valves to secure a better bond when vulcanizing the valve to a tube. In this operation, the Pittsburgh brush was chosen because it outlasts competitive makes.

WRITE TODAY for your free copy of our new booklet that shows, through actual case histories, how Pittsburgh can help cut *your* brushing costs. Address: Pittsburgh Plate Glass Co., *Brush Div.*, Dept. W-2, 3221 Frederick Ave., Baltimore 29, Md.

PITTSBURGH
Power Driven
BRUSHES

BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Rugged-Duty Roller Conveyors for Permanent Installation

Rugged-duty roller conveyors, designed for permanent installation where equipment must stand under heavy or impact loads are made by The Rapids-Standard Co., Inc., Grand Rapids 2, Mich. Called the 1.9 series, the line of conveyors offers a choice of 154 straight section models and 38 curves for handling many kinds of material in all types of industries. The series is manufactured in 11 regular widths from 12″ to 51″ with choice of 7 roller spacings from 2¼″ to 12″ on centers. Capacity is 250 lb per roller in normal duty use, subject to frame capacity of 2750 lb (including weight of conveyor) when supported on five foot centers.

Sandwich-Type Aluminum Panels Suggest Many Uses

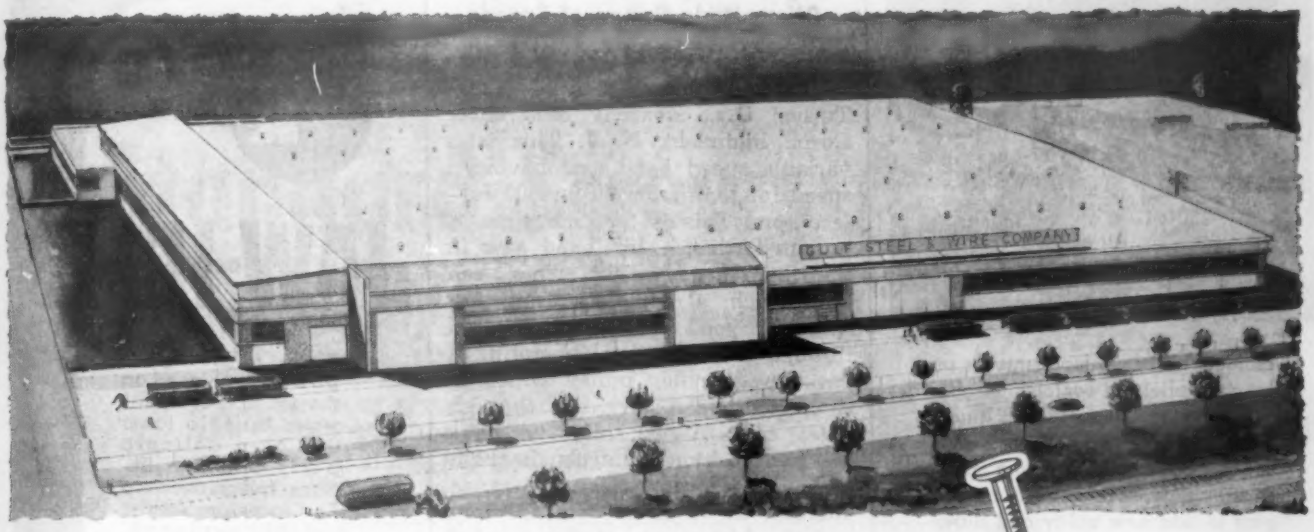
Sandwich-type panels featuring a honeycomb core have been put on the market by Reynolds Metals Co., 2500 S. Third St., Louisville, Ky. The panels consist of two outer sheets of embossed aluminum bonded with heat and pressure to a core made from resin-impregnated paper formed into a figure-eight honey-combed construction. Manufactured in standard thicknesses from one to four inches the panels are claimed to be unusually strong in relation to their extremely light weight and to have excellent thermal and acoustical insulation qualities. The material, marketed under the name Reynocell, is available in sizes up to 57″ by 16′. Suggested uses are for making desks, doors, catwalks, refrigerator cars, etc., etc.

Dressing Tool Cuts Cost of Diamond Wheel Operation

Costs of diamond wheel operation can be cut and longer tool life between grinds can be assured by use of a new dressing tool, says U. S. Diamond Wheel Co., Aurora, Ill. The device is a hand hone tipped with diamond concentrate. "Fingertip" control by means of a hollowed-out finger rest near the end of the hone aids accurate operation. This control permits the hone to fit firmly in the hand for accurately controlled tool dressing without removing tool from the machine. It is applicable to all general and special shop requirements and provides a complete range for all tool and cutter dressing.

Gulf Steel & Wire Co. Announces:

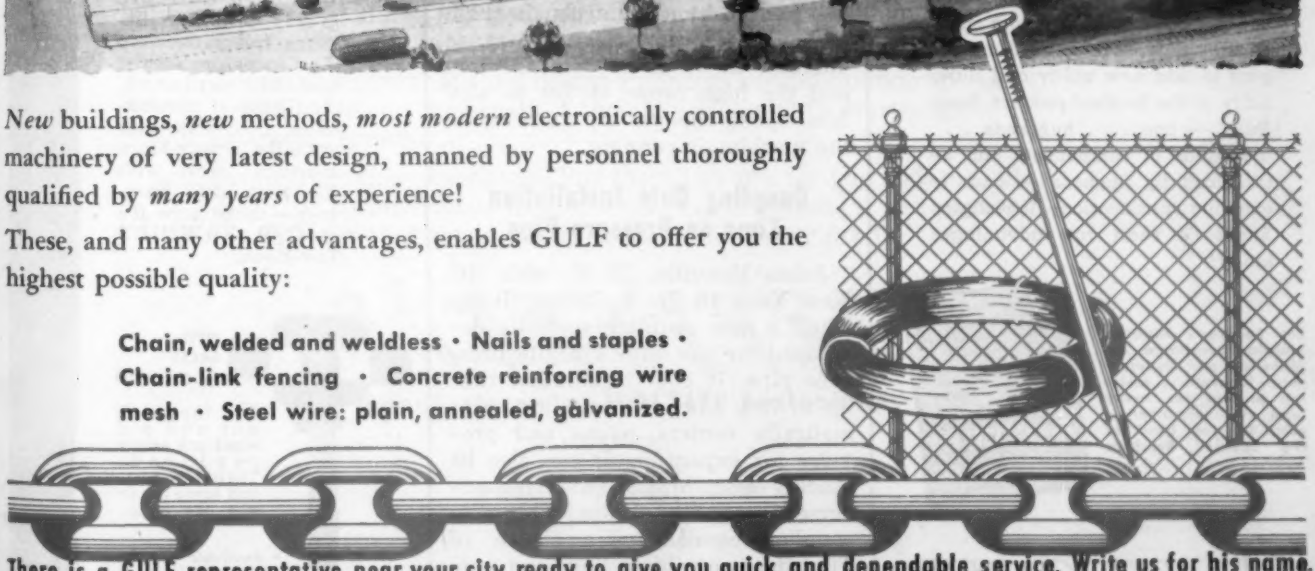
AMERICA'S MOST MODERN WIRE PRODUCTS MILL!



New buildings, *new* methods, *most modern* electronically controlled machinery of very latest design, manned by personnel thoroughly qualified by *many years* of experience!

These, and many other advantages, enables GULF to offer you the highest possible quality:

Chain, welded and weldless • Nails and staples • Chain-link fencing • Concrete reinforcing wire mesh • Steel wire: plain, annealed, galvanized.



There is a GULF representative near your city ready to give you quick and dependable service. Write us for his name.

GULF STEEL & WIRE COMPANY

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BAYAMON 16, P. R., U. S. A.

DESIGN, DEVELOPMENT and PRODUCTION of...

SHORT RUN

MOLDED RUBBER COMPONENTS

Complete engineering and production facilities to solve your rubber problems, fill your rubber requirements — even on *limited runs!*

Molded rubber components in an infinite variety of contours, shapes and sizes can be produced quickly, flawlessly by Spencer. Expert rubber technicians can work closely with you—developing a molded part to add new utility and durability to the finished product. Short Runs — one . . . hundreds . . . thousands of components can be produced by Spencer — each to exacting specifications. Investigate Spencer's short run advantages today!

Let Spencer's facilities —mold department, engineering and development laboratory, molding presses for every type of requirement — work for you. Send for the Spencer Brochure TODAY!

Spencer
Rubber Products Co.

10 Chapel Street
Manchester Connecticut

Stainless Steel Valves Meet Process Industries Requirements

A stainless steel valve made by the Cooper Alloy Foundry Co., Hillside, N. J. meets the rigid appearance and service requirements of the food, chemical and related industries. Featuring a rugged, compact shell cast body and guided precision cast V2B disc, this union bonnet, inside screw, nonrising stem valve is available in ½, ¾ and 1" sizes. The non-rising stem design is to minimize product contamination. Large stuffing box and accurately machined discs and seats reduce the possibility of leakage and heavy wall sections resist corrosive chemicals. The discs are cast in V2B, the new patented high hardness, gall- and corrosion-resistant alloy.

Light-Heavyweight Band Saw Offers Wide Range of Speeds

An innovation in the band saw field is announced by Walker-Turner Div., Kearney & Trecker Corp., Plainfield, N. J. This is a variable speed band saw having a speed range of from 50 to 4500 surface fpm. This is the first time, it is stated, that a 16" band saw in the light-heavyweight class can offer such a complete range of speeds. Speed change is offered through a hand wheel operating a variable diameter pulley which is connected to the saw wheel through a gear train. A gear shift lever having two positions controls the high or low speed range. The low range operates at 50 to 450 surface fpm and the high range at 500 to 4500 fpm. Speed changes are made while the machine is running.

Coupling Cuts Installation Time on Pressure Pipe

Johns-Manville, 22 E. 40th St., New York 16, N. Y., offers "Ring-Tite," a new coupling specially developed for use with Transite pressure pipe. It cuts installation time up to 75% since the coupling automatically centers, aligns and provides for expansion. It can also be quickly assembled even under adverse trench conditions. The new coupling consists of a sleeve of Transite, two rubber rings and pipe ends specially machined. The sleeve has two grooves cut circumferentially into the inner wall. These grooves locate the rings accurately and firmly hold them in position and the tapered ends of the pipe make for easy insertion.

you can't buy a **better** "soft" hammer —anywhere!

C/R

JAW-HEAD

There's plenty of power cushioned in the tough, resilient water buffalo faces that give delicate parts and fine finishes full protection. And faces are easily, quickly replaced. You have a comfortable, non-slip grip with the Safety-Flare handle. Work with the best "soft" hammer — make sure it's a C/R RAWHIDE Jaw-Head.

NEW FACES IN SECONDS!

Just loosen a nut and old faces are easily replaced. Tighten nut, and faces are in vise-like grip.

• Available from leading industrial suppliers. Also C/R Rawhide mallets and Rawhide mauls.

For further information write Dept. 22

CHICAGO Rawhide MFG. CO.
1301 Elston Ave., Chicago 22, Ill.
In Canada: Super Oil Seal Mfg. Co., Ltd., Hamilton, Ontario

HERE'S PROOF: You can always count on Continental for every fastener need!

Continental Produces Over 1,756,000 Styles and Sizes of Standard Screws Alone!

. . . to quickly meet your every demand

Whether your needs are special or regular fasteners, always count on Continental for satisfaction. Their total of over 1,756,000 different sizes and types of standard screws alone give you a greater selection than any other fastener producer.

You can be sure that their design engineers and production specialists will give you the benefit of their experience with every standard or special fastener.

Profit from this experience. Put them to work for you today. Call direct or through your local distributor. Continental has proven for 50 years that it can better satisfy your every need.

Manufacturers of HOLTITE Fastenings

CONTINENTAL SCREW COMPANY INC. 1904

50th Anniversary

CONTINENTAL SCREW COMPANY

New Bedford, Mass., U. S. A.

THEY HAVEN'T A FRIEND IN THE WORLD!

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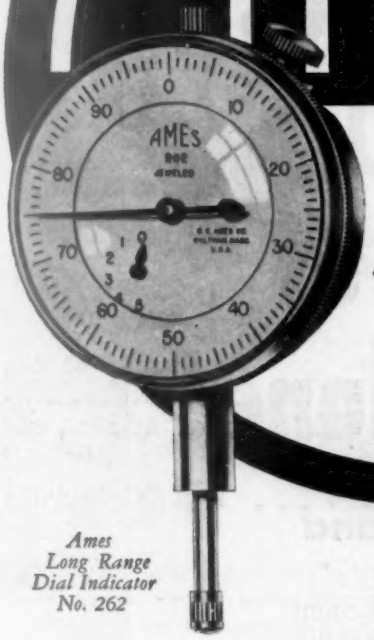
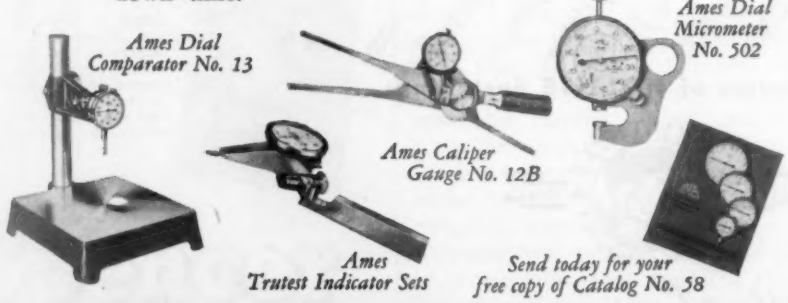
...the preferred



Ames Long Range Dial Indicator No. 262

...not because they cost more (in the long run they're more economical) but because they're completely *impersonal.* They do their measuring jobs absolutely independent of the human hand.

For more than 50 years, Ames Micrometer Dial Gauges and Indicators have kept pace with increasingly critical precision requirements. Today, each part of every Ames product is carefully built by exclusive Ames methods and machines from the materials best suited to its function — and 100% checked for accuracy. As a result, all Ames products are extremely accurate and sensitive, yet rugged and tough — to give you *longer* service with *less* down-time.



Ames Dial Comparator No. 13

Ames Dial Micrometer No. 502

Ames Caliper Gauge No. 12B

Ames Trutest Indicator Sets

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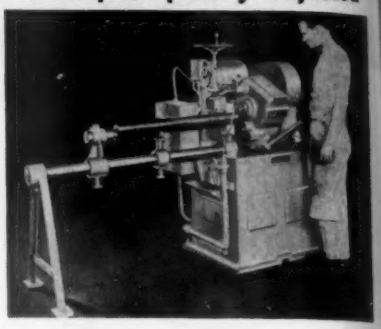
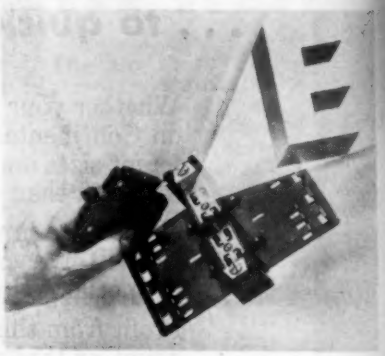
Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

Milling and Centering Machine Is Simple, Speedily Adjusted



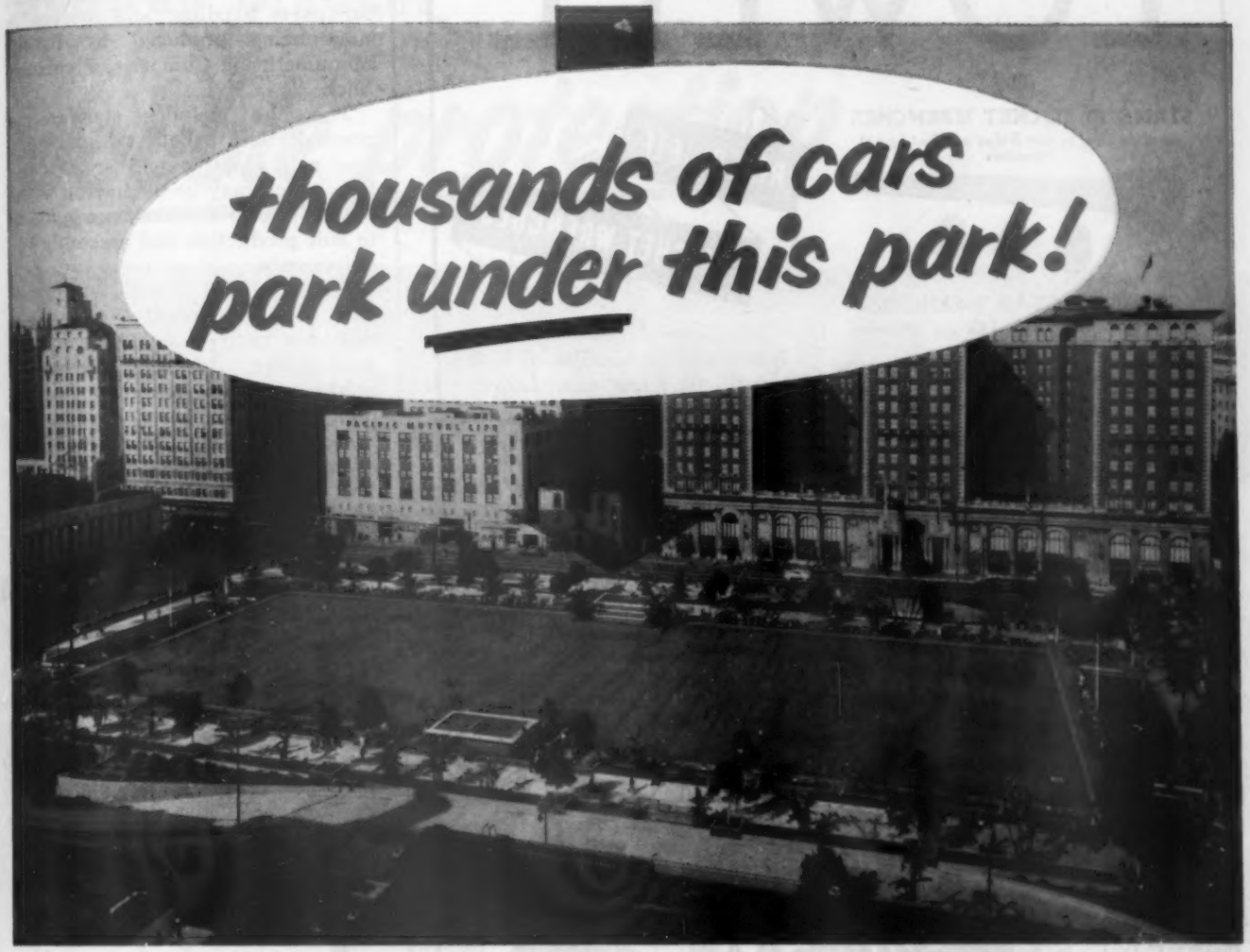
A new single end milling and centering machine handles work from ¾" to 3½" diam. x 5" 48" long. Simplicity and speed of adjustment makes it ideal for the steel room or lathe department for miscellaneous shaft work. After the shaft has been located and clamped, the rocker-type milling head mills one end. The milled end is then manually centered with a ¾" (maximum) center drill. The part is reversed and located from the center or end previously machined for milling and centering the opposite end. Power feed to the center drill and power clamping is optional. Sundstrand Machine Tool Co., Rockford, Ill., are the makers.

Circuit Breakers Save Space



Federal Electric Products Co., 50 Paris St., Newark, N. J. is manufacturing "Stab-lok" circuit breakers, type NC, in a slim, space-saving construction that permits two of the breakers to be stabbed in, where only one would fit before. They are available in 15 and 20 amp. The breakers are designed with tease-proof, quick-make, vibration - dampened action that guards against undue contact wear; resilient pivot pin for wiping contact action and with ambient temperature compensation. Thermal-magnetic action, incorporated into the breakers, passes harmless momentary overloads. But in the event of short circuits or dangerous overloads, the circuit is broken instantaneously.

Protected by a Koppers Roof—



City Park Garage, located beneath Pershing Square, Los Angeles, Calif. This underground garage can accommodate more than 2,400 cars. It is protected by a Koppers Built-Up Roof.

Architect: Stiles Clements—Associated Architects and Engineers.
Contractors: Ford J. Twaits Co.; T. S. Construction Engineers, Inc.; Morrison-Knudsen Co., Inc.
Roofer: Pioneer Roof Co.

• Los Angeles — like many other major cities—is plagued by parking problems. The City Park Garage, recently constructed beneath historic Pershing Square, is helping to ease this situation in the downtown area.

On three subterranean levels, this huge garage can house more than 2,400 cars at one time. Cars swirl in and out, passing *under* sidewalks, so there's no danger to pedestrians and no delay to motorists. Eight ramps parallel adjacent streets, making it easy for outgoing autos to mix with passing traffic.

In between the re-landscaped park shown here, and the underground garage, is a Koppers Roof. Built up with plies of Koppers Coal-Tar Pitch and Tarred Felt, this roof will provide *lasting* protection. For example, protection against water is vitally important for a structure of this kind. Coal-tar pitch is famous for resisting water and, for this specific roof, about 250 tons of Koppers Coal Tar Pitch were used.

Whether you're interested in a flat roof for an unconventional or conventional building, specify Koppers and you'll get the best in built-up roofing. Full information on request, or see our specifications in Section 7a —Sweet's Architectural File.

KOPPERS

see our catalog in SWEET'S ARCHITECTURAL FILE or write for copy

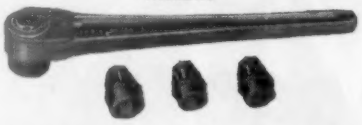
KOPPERS COMPANY, INC., Pittsburgh 19, Pennsylvania

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALABAMA

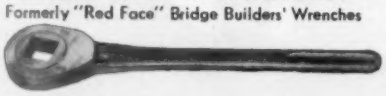
• SPECIFY KOPPERS FOR LONG-LIFE ROOFING •

LOWELL

SERIES 50 SOCKET WRENCHES
Formerly Steel Socket Bridge and Red Socket Wrenches



SERIES 40 GEAR WRENCHES
Formerly "Red Face" Bridge Builders' Wrenches



SERIES 20 WRENCHES
Formerly 1916 Pattern

REVERSIBLE RATCHET WRENCHES

Extra sturdy handles of high tensile alloy castings. Lowell Wrenches give strongest possible strain because pawls are cut from steel, are specially heat-treated and have great crushing action. All sizes from 6" in length on up.

See your Distributor — or write us for Catalog No. 60A

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WORCESTER 8, MASS.

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How many pennies make a million?

ASK THE Westron MAN.

he'll tell you and he'll also tell you how you can save a great number of pennies (which can add up to dollars) by using

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no-blink starters
INDIVIDUALLY CHECKED
to light and trip out — before being shipped
GUARANTEED TWO FULL YEARS
be sure you order money-saving and ballast-protecting WESTRON no-blink starters for longer life and dependable lighting for your fluorescent lamps and tubes.
SEND FOR TRIAL ORDER of 100 TODAY!
EVERY STARTER DATED

Prove to yourself why firms like
American Can Company
E. I. Du Pont De Nemours & Co.
Gillette Safety Razor Co.
F. W. Woolworth Co.
Metropolitan Life Insurance Co.
use **WESTRON.**

A complete line of Labor Saving Lighting Products

by **Westron CORPORATION**

Approved by Underwriters' Laboratories, Inc. and Certified by E. T. L.

652 HUDSON STREET • NEW YORK 14, N. Y.

For more info. on our complete line of WESTRON Electrical Fixtures, contact your WESTRON representative located in principal cities throughout the nation or write direct.

Parts Handling & Storage Equipment Easy To Assemble

A complete new line of equipment for parts handling and storage is now being produced by Bathey Manufacturing Company, Plymouth, Mich.

The line includes standardized pressed metal pellets, tote pans and tote pan adaptors and small parts bins which may be assembled without tools into infinite arrangements to suit production and assembly requirements.

The tote pans provide easy visibility and accessibility of contents and any pan may be removed, drawer-like, without disturbing its neighbor. Groups or sections of the tote pans can be moved by lift trucks. Benches can be made by using tote pan adaptors and tote pans as the base.

Construction is of heavy gage sheet metal and finish is in three choices of industrial enamels.

Electric Mat Aids Morale

An electric mat will be found to be a great aid in boosting employe morale, reducing absenteeism and generally increasing productivity of office workers, industrial machine operators, elevator operators, etc. The mat, made by Interstate Rubber Products Corp., 908 Avila St., Los Angeles 11, Calif., is 14" x 21" in size and weighs approximately 5 lb. This lightweight foot warmer is small enough to be moved from machine to machine or from desk to desk without difficulty. It consumes only as much power as a 100 watt light bulb. High grade rubber construction insures long life.

New Furnace for Cycle Annealing

A gas-fired pit furnace for cycle annealing of small hand tools is now available from the Westinghouse Electric Corporation, Pittsburgh, Pa. It can also be used for carburizing, hardening and nitriding.

Maximum operating temperature is 1600 F. The firing of the furnace is completely automatic and a combustion blower system is contained for purging and cooling purposes.

The furnace is available in five sizes ranging from a charge space of 14 inches in diameter by 18 inches deep with an approximate production rate of 120 lbs. per hour net to 30 inches diameter by 72 inches deep with an approximate production rate of 2100 lbs. per hour net.

BullDog Breaker

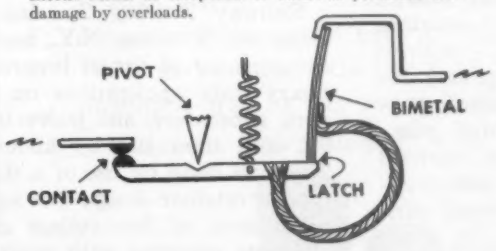
double protection

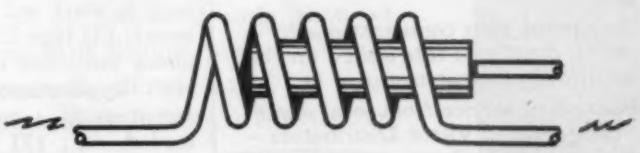
DUO-GUARD

Duo-Guard Pushmatics are available in 15-, 20-, 30-, 40- and 50-ampere ratings: 1-pole, 120 V., A.C.. Listed by Underwriters' Laboratories, Inc.

Simplified diagram of Thermal Element

As bimetal is heated by excess electric current, it bends and releases latch. Spring snaps latch upward, breaking contact. Branch circuit wiring, including insulation, from Electri-Center to receptacle or outlet is protected from damage by overloads.





Simplified diagram of Magnetic Element

Wound wire coil (solenoid) is energized by current. When short occurs, coil *instantly* activates metal plunger which breaks contact. BOTH BRANCH CIRCUIT WIRING AND LAMP AND APPLIANCE CORDS ARE PROTECTED FROM ELECTRICAL OVERLOADS AND SHORTS.

ELECTRIC PRODUCTS COMPANY

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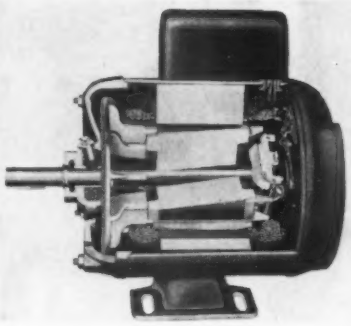
SAW WORKS, INC. • MIDDLETOWN, N. Y., U. S. A.
Makers of Hand and Power Hacksaw Blades, Frames, Metal and Wood Cutting Band Saws.

Vaneaxial Blower Moves Air at Temperatures Up to 350F

A vaneaxial blower may be used to move air at temperatures up to 350 F or air containing acids, alkalis or fine abrasive dust without fear of premature failure of belts and bearings. The new high temperature blower is available in size ranges 12″ to 54″. The addition of a special dummy section containing the guide vanes makes possible the location of the drive on the negative pressure side of the blower. With this arrangement, clean air from outside the duct is drawn in through the belt tube and over the bearings. On conventional vaneaxial blowers, leakage of destructive air from the airstream to the belt and bearings cannot be avoided. Made by Hartzell Propeller Fan Co., Piqua, Ohio.

New Motors Give More Power in Smaller Frames

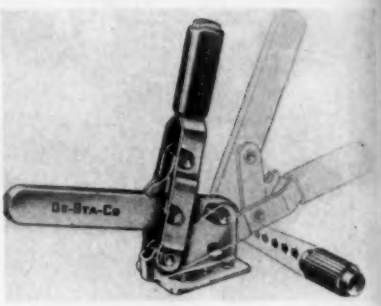


More power in smaller frames is claimed by Century Electric Co., St. Louis 3, Mo., for its open type, drip proof fractional hp motors, form "F." They are available as: (1) type SP—split phase single phase induction motors for general purpose applications, where the load is easy to start and easy to pull up to speed; (2) type CS—capacitor single phase induction motors for hard to start applications such as pumps, compressors, machines starting loaded, etc.; (3) type SC—squirrel cage polyphase (3 or 2 phase) induction motors for all general purpose applications. The high pressure, die cast, aluminum squirrel cage rotor is practically indestructible. Lubrication is by wool yarn method of circulating.

Improved Tape Dispenser

Cellophane tape can be better and more economically handled with a tape dispenser and slitter made by Permacel Tape Corp., New Brunswick, N. J. It handles tapes up to 1″ width. A calibrated gage permits accurate control of tape lengths up to 4″ and two strips of tape of pre-determined length can be dispensed in a single operation. One or both pieces of tape can be pulled from the machine as needed. An over-ride permits withdrawal of unmeasured tape in any length. The completely enclosed slitter blade eliminates danger of operator being cut. Slitter attachment is permanent part of the device.

New Clamp Design Gives Longer Life



A new type of bushing for its series No. 210, 220, 228 and 240 toggle clamps will, according to Detroit Stamping Co., 408 Midland, Detroit 3, Mich., offer longer life under repeated stress and volume operations in the range from 500 to 800 lb pressure. The bushings run full length through the clamp bars to provide more bearing surface and are hardened to resist wear. Instead of an ordinary press fit, the bushing is serrated and locked in the clamp bars to prevent turning and working loose. The former design was a hardened pin in bushings the thickness of the bar stock. The hard-bushed clamps are expected to minimize replacements and provide accurate snap action at all times.

New Design Increases Thrust Bearing Capacity, Life

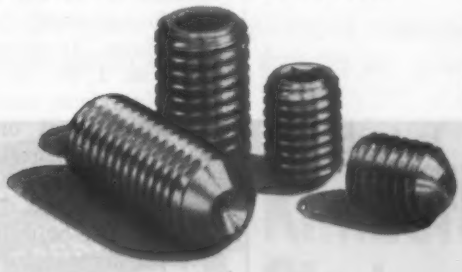
Rollway Bearing Co., Inc., Seymour St., Syracuse, N.Y., has raised the capacity of thrust brearings for heavy duty applications on extruders, generators, and pulverizers by 9% and their life by about 29%. This was done by use of a different type of retainer design that sets long roller slots of five rollers each in alternate positions with short roller slots of four rollers each. Because the new staggered slotting increases the number of rollers exposed to the thrust load of the bearings, load capacity has been greatly increased. Thus, the bearings will carry a 590,000 lb load at 100 rmp where older types only attain 542,000 lb at 100 rpm.

NEW *Allenpoint Set Screws*

WITH SCIENTIFICALLY-DESIGNED SMALLER CUP POINTS

Tested comparatively by United States Testing Company* with standard cup point screws and screws with angled and serrated points, the new Allenpoint demonstrated (1) greater locking power at *all* measured installation vs removal torque pressures, (2) uniformly high shaft holding power in torque resistance tests, (3) unmatched performance under vibration, and (4) more complete shaft contact pattern. Sold *only* by leading Industrial Distributors. Write us for more facts about the results of these important tests of set screw performance.

**Report No. E 5576, March 17, 1953.*



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ALLEN HEAD

Hose Replacement Reduced 1/3

with

Quaker

IRONSIDES STEAM HOSE

How to lessen hose replacement yet maintain production? That was the cost problem faced by a large chemical company—and solved by Ironsides' ability to give three times the service of other makes. Widely accepted as the strongest, safest hose for general steam service, Ironsides is braided with steel wire and bonded with rubber. Added braid of glass cord for insulation and extra strength. Kink-proof. Easy to handle. At least 4 times stronger than wrapped fabric hose yet costs no more. For economy, use Ironsides—a Quaker exclusive for greater service and safety.

Write for free folder and name of nearest distributor.

Belting, Hose, Packing and Moulded Rubber of every construction for every need.

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DIVISION OF H. K. PORTER COMPANY, INC.
OF PITTSBURGH
PHILADELPHIA 24, PA.
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Glass-Braid-Lacquered Wire Meets Temperature Extremes

Wire that meets temperature extremes is now being produced by Essex Wire Corp., Fort Wayne, Ind. It is the first UL-approved glass-braid-lacquered wire with silicone rubber insulation. Named Sil-X it retains its flexibility at —60F and maintains its strong physical and electrical properties at as high as 400 F. Among other advantages are high resistance to flex cracking, low dielectric constant, and an insulation that is fungus-resistant. Six sizes of the wire have been approved for use in lighting fixtures up to 200 C and for radio and television hookup at temperatures up to 150 C. It is recommended for use in furnace control equipment.

Low Cost Thermostat

Quick-make and quick-break close temperature control is made possible by means of a new low cost thermostat. Called the Tri-Snap thermostat, this temperature regulator provides snap-action at minimum differential between "on" and "off." It incorporates an adjusting screw, which is easily designed in varying lengths and contours to meet special location and knob or dial attachment requirements. The standard temperature range is —80 F to 300 F. Made by Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa.

Capacitance Unit Has No Moving Parts

The new Tektor Level Control manufactured by Fielden Instrument Division, Robertshaw-Fulton Controls Co., 2920 N. Fourth St., Philadelphia, Pa., is an improved capacitance unit with no moving parts.

Simplified electronic circuit operates by a change in the electrical capacitance of the electrode caused by the approach of any material that flows. It provides control as close as 1/16" of liquid, divided solid, interface, conducting or non-conducting, wet or dry materials. Electrodes are rigid rods or discs and can be sheathed in corrosion resistant material. Electrodes available for use with pressures up to 2000 psi, temperatures up to 1500 F. The instrument operates on 115 volt, 60 cycle, power supply.

Not when you use KIMPAK* 301 !

New KIMPAK 301 is the practical solution to appliance surface scratching and other marring damage. KIMPAK 301's ability to shield the fine finish from abrasive high spots on the inner walls of cartons and blocking and bracing members of crates makes it the ideal protective agent in an appliance package. And KIMPAK 301 costs no more than ordinary materials. It is specially designed to prevent the three major causes of scratching:

1. Abrasiveness of the inner spacers. Kimpak 301 provides a scratch-free, non-disintegrating, compressible barrier between inner spacers and the appliance finish. Its conformability ensures a snug package.

2. Dust, dirt, cinders that sift into the container. The combination of high creping and porous structure—exclusive with KIMPAK—traps dirt, grit or cinders, which may lodge between the packaging material and the surface.

3. Abrasive action of harsh packaging materials. KIMPAK 301 is soft and non-abrasive . . . free from wood splinters, dirt and other abrasive materials. No lumps, hard glue spots or stiff wrinkles.

Scratching is but *one* of many problems encountered in appliance packaging. These problems are solved with KIMPAK 301. For more details, contact the KIMPAK distributor in your area, or mail coupon below.

SPECIFY KIMPAK 301 TO SOLVE THESE INTERIOR PACKAGING PROBLEMS:

Scratching
Pressure-marking
Staining
Corrosion
Conformability
Ease of handling
Appearance
Disintegration

Whatever your protective interior packaging requirements, there is a Kimpak specification that does the job . . . better!

KIMPAK INTERIOR PACKAGING
*T. M. REG. U. S. & FOREIGN COUNTRIES

A Product of **Kimberly-Clark**

KIMBERLY-CLARK CORPORATION Dept. P-14
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We would like to learn how new Kimpak 301 can provide better protection at lower cost for our products. Please send complete information.

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AND ALUMINUM

FORGED TO
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PRECISION
MACHINED
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IT'S YOURS! NEW 32-PAGE
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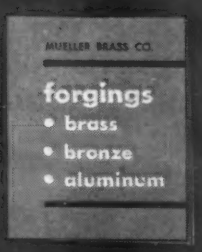
MANUAL. WRITE TODAY



MUELLER BRASS CO.
PORT HURON · MICHIGAN

112

Economical Surface Measuring Instrument Is Available

An instrument that measures surface roughness by a non-destructive test, and to a measured range extending from 1 to 1000 microinches, is available. It enables subcontractors located in scattered areas to make parts to the same exacting specifications. The operating details are simple. When the diamond tip stylus moves across the peaks and valleys of a surface to be measured, the microscopic mechanical motion is transformed into electrical signals, which are indicated on a meter as roughness in microinches. Device is made by Brush Electronics Co., 3405 Perkins Ave., Cleveland 14, Ohio.

Substance Protects Paint Spray Booth Interiors

A new substance protects the inner surfaces of spray booths as well as turntables and stands, so that when paint overspray accumulates it may be removed easily and quickly. The product is of a paste-like consistency and is milky white in color. It can be applied to any surface by brush, trowel or knife to a thickness of about 1/16". It can be used in two ways. First, it may be covered by ordinary paper which can be stripped off by hand when overspray builds up. Secondly, the shield material can be used alone so that overspray strikes it directly, to be removed by a knife. Thompson & Co., Oakmont, Pa., makes it.

What's the Biggest Factor

—in buying maintenance paint?

Is it price or is it cost? Is it what you pay per gallon of paint or what you pay for the job?

Obviously it's the cost . . . what you pay for the job. And that is why it pays to paint with Barreled Sunlight. True, you might have to pay a slight premium on the gallon price for Barreled Sunlight . . . but that premium earns a great big bonus in savings on *both* paint and labor.

Barreled Sunlight takes more thinner, as much as one gallon of thinner for every five gallons of paint . . . paint that gives you more square feet per gallon. You buy less paint.

You cut the cost of your paint. But of far greater importance, Barreled Sunlight . . . famous for its bright, clean, solid hiding . . . gives you more yardage. It covers more area per brush stroke . . . goes on much easier and faster. It cuts your labor costs . . . often enough to pay for all the paint used on the job.

Yes, and you can prove these points, to your profit, with a simple on-the-wall test which our representative nearest to you will gladly explain at your convenience. Write and he'll promptly call.

BARRELED SUNLIGHT PAINT COMPANY
18-A Dudley St., Providence 1, R.I.

SEND FOR THIS NEW CATALOG NOW . . .
For full information on all Barreled Sunlight Maintenance Finishes . . . as well as Barreled Sunlight's new and advanced "Engineered Color" Plan . . . write today on your company letterhead for this new Barreled Sunlight Catalog. No charge. No obligation.

Barreled Sunlight®
Paints

In whitest white or clean, clear, wanted colors, there's a Barreled Sunlight Paint for every job

For over half a century those who know the best in paints . . . for all types of buildings . . . have strongly insisted on famous Barreled Sunlight

Unusual Care...

The Milwaukee zoo used the mother of these kittens to nurse a baby leopard. Snowflake, a Pomeranian, is shown here caring for the "evicted" kittens.

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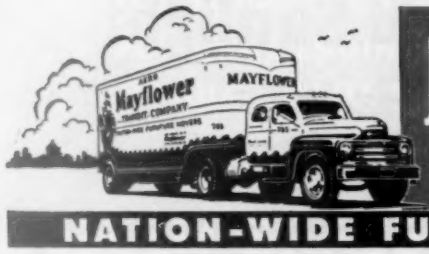
Go the MAYFLOWER Way!

▶ In long-distance moving unusual care means extra protection, extra-precaution, extra attention to every detail! That's what you want . . . and that's what you get when you move your personnel the safe and easy Mayflower Way! Mayflower has standardized into its service—and in many cases pioneered—more major refinements in long-distance moving than any other carrier. Scientific personnel selection procedures, movers' training school, equipment manufactured to special specification, organized, preventive maintenance, special packing materials, and elimination of tailgates are but a few. That's why it will pay you to call your local Mayflower representative whenever you have personnel to move long-distance!

AERO MAYFLOWER TRANSIT COMPANY · *Indianapolis*

Mayflower's organization of selected warehouse agents provide on-the-spot representation at the most points in the United States and Canada. Your local Mayflower agent is listed in the classified section of your telephone directory.

Guaranteed by Good Housekeeping



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America's Finest

NATION-WIDE FURNITURE MOVERS

Mast Can Be Used for Low Ceiling Work, or for High Stacking

A double telescopic mast can be lowered for working in low-ceilinged areas, or extended for extremely high stacking in others when used on lift trucks. The mast makes it possible for one truck to be used both for entering and loading or unloading in boxcars and highway trailers, as well as for high-stacking in storage areas. Thus the need of a second truck is eliminated, and the time necessary for transferring loads one to the other, is saved. The mast consists of two short masts, the first mounted in conventional position, and the other mounted in place of the carriage. Made by Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio.

Explosion-Proof Trouble Lamp Used in Hazardous Locations

Risks in inspecting the interior areas of oil and gasoline drums or process vessels and tanks are greatly reduced with a new explosion-proof trouble lamp. Similar to the powerful beam of a flashlight, the concentrated beam of this lightweight lamp assists maintenance at hazardous locations. If one or more explosions were to take place in the lamp compartment caused by an arc in the lamp socket, flame-tight threaded joints located around the lens housing and along top and bottom sections of the lamp compartment, confine explosion flames within the lamp compartment. Made by Crouse-Hinds Co., 7th North St., Syracuse, N. Y.

Non-Flammable Hydraulic Fluid

A non-flammable hydraulic fluid has been developed combining maximum fire resistance with top hydraulic efficiency by E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.

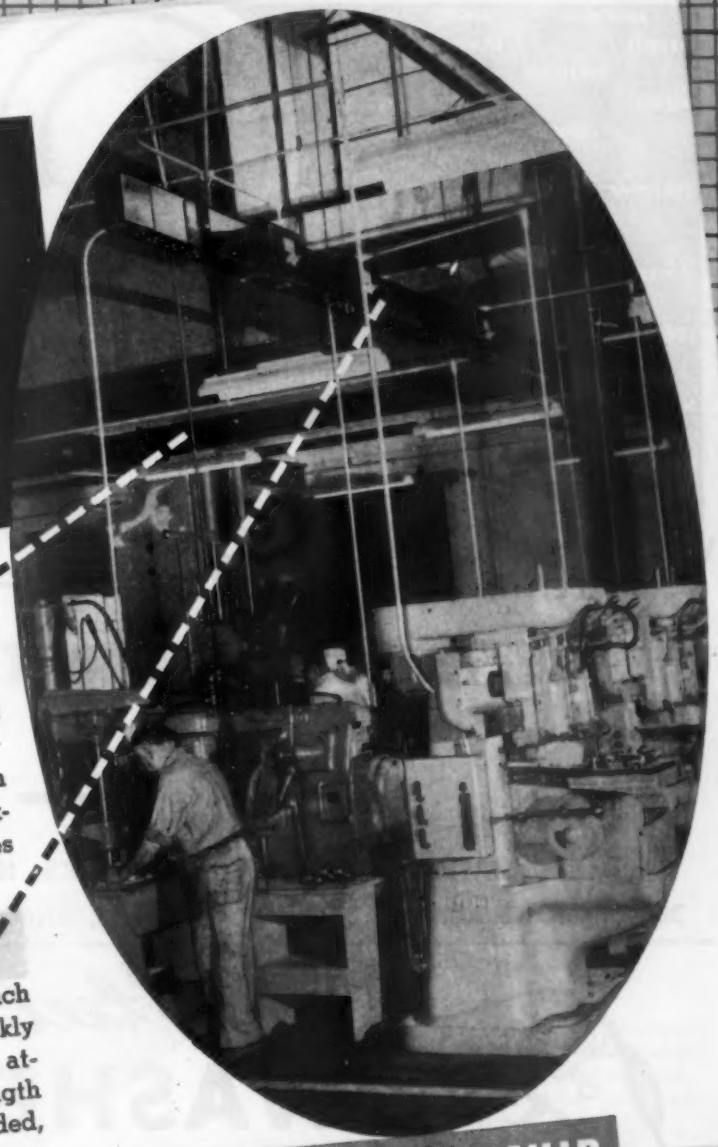
Known as "Houghto-Safe", it is a non-toxic non-corrosive liquid for use in hydraulic equipment operated near open flames or adjacent to extreme heat.

In hydraulic pump tests, the fluid has shown the lubricating ability of high grade petroleum hydraulic oils. It will not freeze and is easily pumpable at working temperatures down to 0F.

The viscosity index of the liquid is 150. It can be used, efficiently, at 1,000 p.s.i. pump pressure.

for time-saving, money-saving

POWER DISTRIBUTION



SQUARE D FEED-IN DUCT

is the most efficient way to transmit large amounts of power. It provides the lowest known voltage drop—only 1.8 volts per 1000 amperes per 100 feet.

Exclusive design requires no ventilation—permits a totally enclosed, compact, dust-excluding enclosure. Rigid construction provides high resistance to heavy electrical stresses.

SQUARE D PLUG-IN DUCT

provides flexible power distribution for branch circuits. Machinery can be rearranged quickly at minimum cost. Plug-in units can be attached at frequent intervals along the length of the duct, providing power where it's needed, when it's needed.

BUSWAY FEATURES PROVE DESIGN LEADERSHIP

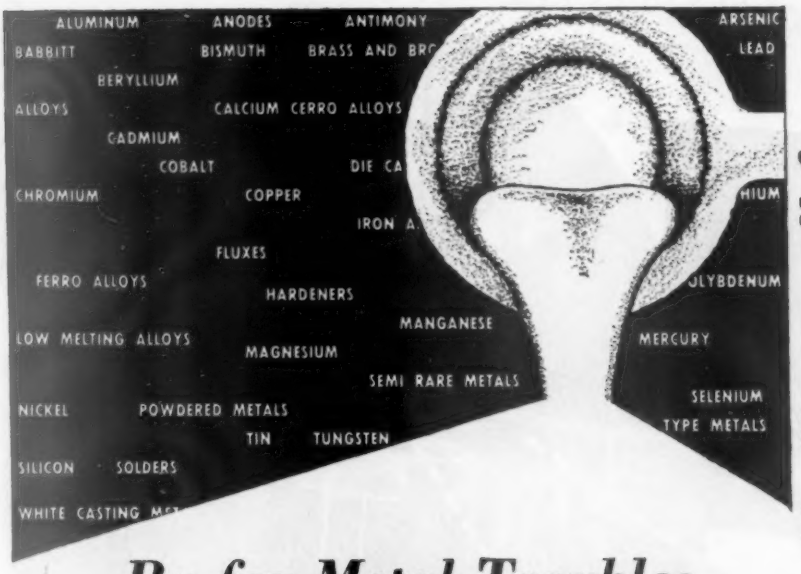
NEW JOINT DESIGN. Feed-in Duct joint design saves installation time and reduces maintenance cost. Duct ends are identical—unnecessary to select mating ends before positioning or hanging duct sections. Outward-facing, pre-installed bolts permit rapid assembly and easy maintenance.

ROUND BUS BARS for Plug-in Duct provide greater mechanical strength and resistance to short-circuit stresses. Circuit breaker or fusible type plug-in units are easily installed at 2-foot intervals along both sides of the duct. Plug-in stabs grip the round bus bars with exceptionally high pressure.

FLEXIBLE CONNECTORS of laminated copper join bus bars between sections—permit proper alignment, insure tight joints and provide for expansion and contraction at Plug-in duct joints. All bolt heads face outward for greater accessibility.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY



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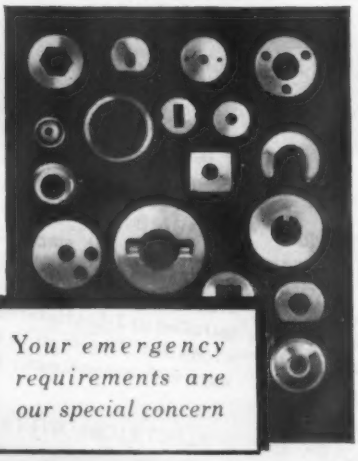
WASHERS

for all your

REQUIREMENTS

Standards ...Specials



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When you get an ear ring for washers, answer the lads with standards and specials from Joliet. Thousands of special dies in many shapes and forms to meet your needs – 9/32" to 8" O.D., gauges No. 28 to 3/8". A variety of finishes available including: Electro-plating, Galvanizing, Parkerizing and Cyanide hardening.

After All! There's no substitute for quality and service.

JOLIET WROUGHT WASHER CO.

203 CONNELL AVENUE, JOLIET, ILLINOIS

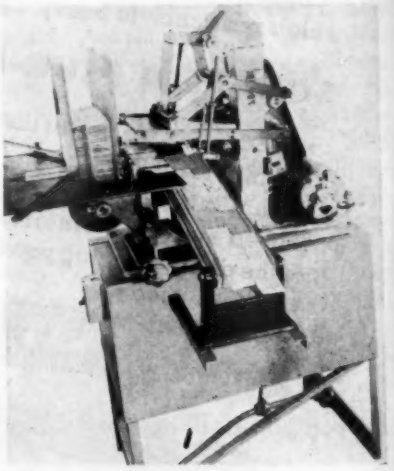
Scale Forming Elements Effectively Controlled

Designed to reduce and prevent hard scale formation in boilers, heat exchangers, bottle washers, air conditioning systems, etc., the Aqua Electric Scale Control minimizes scale trouble regardless of local water conditions.

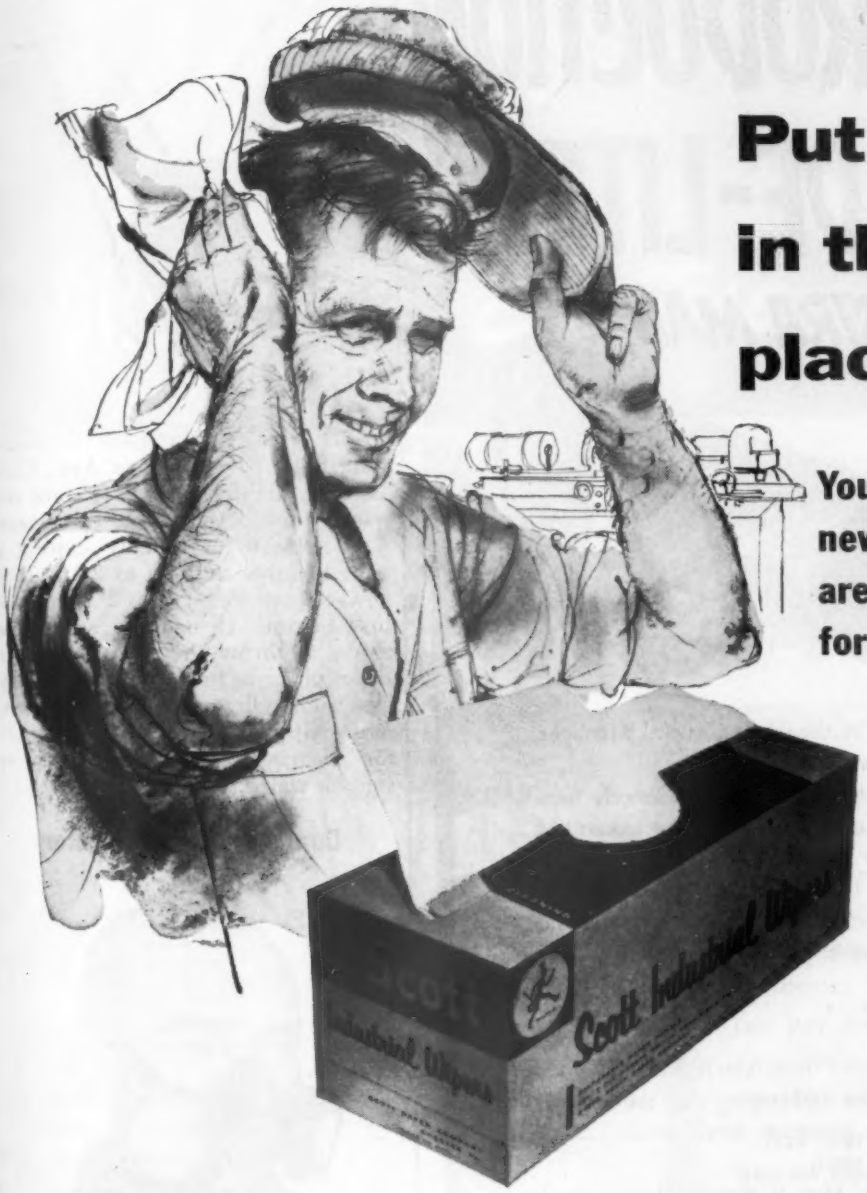
It uses no chemicals relying, instead, on the creation of a physical change in the water-borne particles and salts which cause scale. This is done by passing the water through an electrical field of the proper intensity and having the colloidal particles and dissolved salts act as a conducting medium picking up an electrical charge in proportion to the conductivity of the water itself. Scale forming elements are controlled so effectively that even the worst water conditions will only build up a soft scale of sludge that can be flushed out under normal pressure.

Aqua Electric Scale Control Inc., 2028 East 22nd St., Cleveland 15, Ohio, is the manufacturer.

Machine Automatically Feeds, Marks and Ejects Flat Objects



A machine made by Markem Machine Co., Keene 40 N. H., will print on flat folding boxes, corrugated cartons, plastic panels and other flat objects up to ¾" thickness. Objects to be marked are automatically fed into the machine, printed and ejected at a rate of 80 imprints per minute. This means faster, more economical imprinting of variable information on products, parts or packages. Items are printed when and as needed eliminating box or label inventory problems. The maximum imprint area is 2-5/16" by 6-11/16" and the imprint may be located anywhere in an area 5" by 11". Maximum thickness of objects to be marked is ¾".



Put yourself in this worker's place . . .

You'd know immediately why new Scott Industrial Wipers are setting a new standard for industrial wiping

Scott Wipers are disposable. A thrown-away wiper carries harmful liquids and metal chips with it, thus protecting the workers from major causes of crippling dermatitis.

Within just a few short months, Scott Industrial Wipers have taken hold *fast*. More and more key men are finding that industrial wiping can be scientific—a regular phase of production.

These strong, absorbent Scott Wipers are designed for almost any wiping job. They are uniform in size, color, and absorbency. One Scott Industrial Wiper can be used several times before being thrown away.

SCOTT PAPER COMPANY

Experience shows that it will be to your advantage to let us make a survey of your individual requirements to see how Scott Industrial Wipers can best fit into your operation. For more information, fill out this coupon or contact your local Scott distributor.

For further information, fill out the coupon and mail to Scott Paper Company, Dept. P-D, Chester, Pa.

Name_____

Position_____

Company_____

Address_____

City_____ State_____

"FASTER PRODUCTION WITH JADE-LITES," thanks to the LUSTRA MAN.

[says The Philadelphia Thermometer Company]

THIS REPORT from Mr. L. W. Scanlan, General Manager, may help you improve your own operations:

"The ordinary slimline and fluorescent tubes formerly used in our production department caused an annoying amount of glare. At the suggestion of our local Lustra Man we installed Lustra Jade-Lite Fluorescent Tubes and immediately found that both glare and eyestrain were eliminated... with the end result that production has been importantly speeded."

• • •

Like other plant men the country over, you'll find that your local Lustra Man can reduce glare and step up the "see-ability" required for top efficiency in precision work areas... with Lustra Jade-Lite Fluorescent Tubes.

More than that, your Lustra Man is thoroughly qualified to solve practically any individual lighting problem and give you added lighting effectiveness at less cost with the full quality line of Lustra *Double Duty* Lamps, Fluorescent Tubes and allied electrical products.

Write us for literature giving the whole Lustra story.
Lustra Corporation, Dept. V-10, 36 Washington St., B'klyn 1, N. Y.

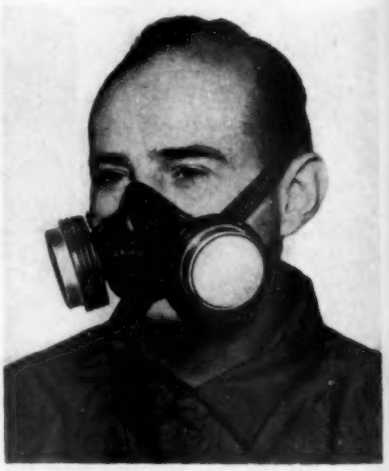
Lustra
AMERICA'S DATED LAMPS

DOUBLE DUTY REFLECTOR LAMPS. INCANDESCENT LAMPS. FLUORESCENT TUBES. SPOTLITES AND FLOODLITES. RUGGED DUTY LAMPS. FLUORESCENT FIXTURES AND STARTERS

Compact Snow Remover

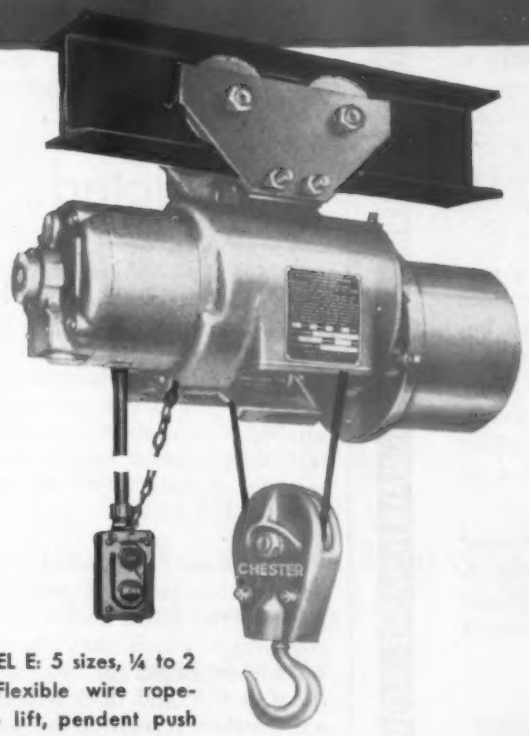
Pioneer Gen-E- Motor Corporation, 5841 West Dickens Ave., Chicago 39, Ill., has a compact snow remover for sidewalks and driveways. It is capable of quickly cutting a path in snow as deep as 24 in. It is powered by a 4-cycle, 2 hp. gasoline engine. It has an adjustable chute to throw the snow to either the right or left side. It is extremely easy to handle, rolls on four wheels, with adjustable front wheel units for clearing rough driveways or smooth walks.

Dual Purpose Respirator



A dual purpose respirator, with twin cartridges for organic vapors or filters for dust, keeps inventories of respirator parts to a minimum. It is only necessary to buy one complete respirator plus other elements desired. As No. 99 respirator, for organic vapors, it has twin 85 cc cartridges with inhale and exhale check valves to prevent rebreathing. As No. 96 respirator, for dusts, it has twin treated wool-felt filters with high filtration factors. Cartridges or filters, as the case may be, are quickly replaced from the front by unscrewing retainer caps. Made by Chicago Eye Shield Co., 2300 Warren Blvd., Chicago 12, Ill.

NOW ... an outstanding new line of CHESTER Electric HOISTS



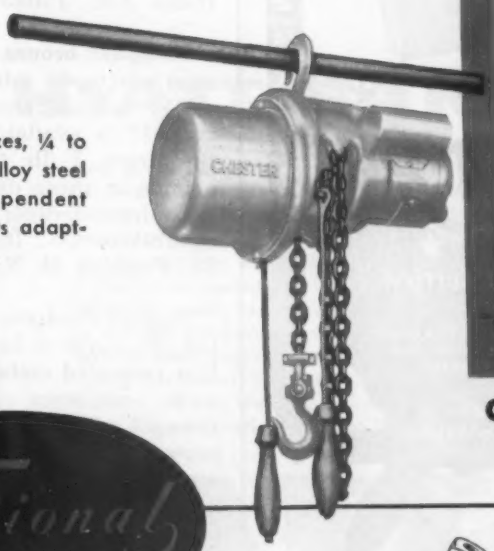
MODEL E: 5 sizes, ¼ to 2 ton. Flexible wire rope-cable lift, pendent push button control. Lifting speeds 15 to 38 f. p. m.

designed to help you put more heavy handling jobs on a paying basis in your plant

COMPARE these new Chester Electric Hoists . . . for efficiency of design . . . rugged durability . . . quality features of motors and parts . . . and for easy, smooth operation.

Chester Electric Hoists in your plant *can pay for themselves* in a remarkably short time . . . in cutting costs of your present load lifting and spotting operations.

Ask your distributor for complete information on the new Chester Electric Hoists, or write us now for these descriptive specification folders, E 853 and EC 953.



MODEL EC: 3 sizes, ¼ to 1 ton. Welded alloy steel link chain lift, pendent rope control. Lifts adaptable up to 66 ft.

CHESTER HOIST DIVISION
The National Screw & Mfg. Co.
Lisbon, Ohio

National PRODUCTS

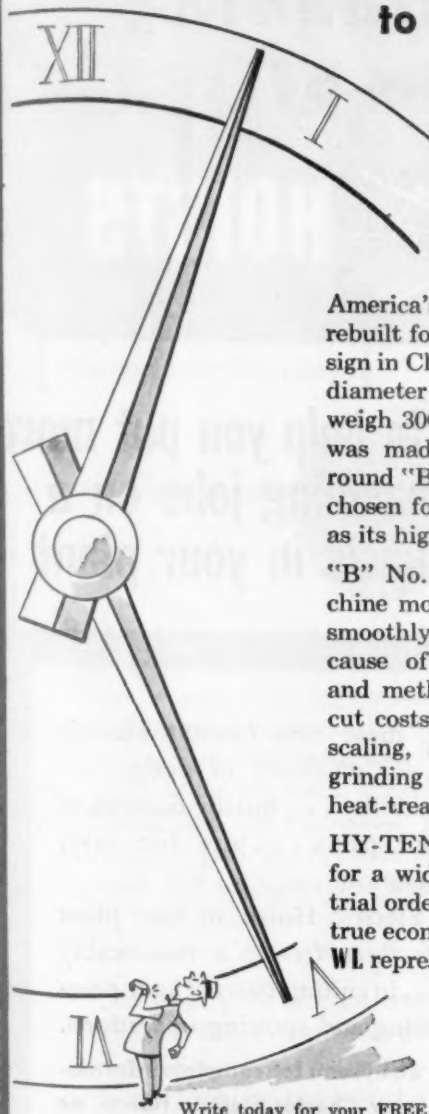
FASTENERS HODELL CHAINS CHESTER HOISTS

OVER ONE HUNDRED YEARS OF CONTINUOUS SERVICE. ROUNDS, SQUARES, FLATS, HEXAGONS, OCTAGONS

BILLETS AND FORGINGS FOR PRODUCTION, TOOL ROOM AND MAINTENANCE REQUIREMENTS

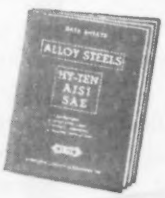
it's the right time

to Investigate the Qualities of HY-TEN ALLOY STEEL



America's largest clock was recently rebuilt for a spectacular illuminated sign in Chicago. It measures 50 ft. in diameter — hands and movement weigh 3000 lbs. The new driveshaft was made from 6 ft. of 3½-inch round "B" No. 3X heat-treated bar, chosen for its machinability as well as its high physical properties.

"B" No. 3X heat-treated bars machine more readily and finish more smoothly than standard alloys because of their particular analysis and method of manufacture. They cut costs by eliminating distortion, scaling, straightening — and often grinding — as well as the cost of heat-treating finished parts.

HY-TEN "B" No. 3X bars are used for a wide range of applications. A trial order will convince you of their true economy. Just call your nearest WL representative.

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Handling Efforts Reduced With New Drum and Barrel Truck

A self-loading and unloading drum and barrel truck made by Bond Foundry & Machine Co., Mannheim, Pa. has a double-ended, spring action chime hook to fit both drum and barrel. This construction, coupled with a floating axle, means that the operator does not tilt the drum backwards to get forks under drum or barrel. Instead, the operator approaches the drum, tilts truck to engage the chime hook and then pulls down on the truck handles. The drum automatically slides onto the fork trucks and the loaded truck is ready to roll. The truck stands upright for safe easy storage.

Also Noted . . .

There need be no more **fogging troubles** with eyeglasses, sunglasses or goggles, according to the Buckley Corp., 607 Fifth Ave., New York 17, N. Y. It manufactures a non-toxic, non-inflammable, non-greasy liquid which can be quickly applied with a plastic applicator and will keep glasses free from fog or mist for 24 hours with one application.

Protection of metal surfaces against corrosion is provided by Barcote No. 600 a leaded petroleum compound which may be applied by either brush or air spray. It flows at 0 F and does not emulsify with water. It resists the action of salt water. It expands and contracts without flaking, blistering or failing. Made by Brooks Oil Co., 934 Ridge Ave., Pittsburgh 12, Pa.

Phosphor bronze in custom rolled strip up to 6″ wide and down to .0005″ to tolerances as close as ±.0001″ is available in any quantity from 1 lb to thousands of pounds in these exacting specifications from Industrial Div., American Silver Co., Inc., 36-07 Prince St., Flushing 54, N. Y.

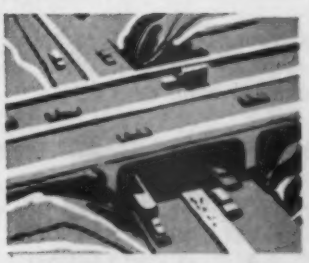
Plasteel Products Corp., Washington, Pa., says it has developed the first **protected metal roof deck.** The deck combines the structural strength of steel with three highly protective coatings—a bond coat, a weather-sealed asphaltic coating and a pure mineral mica topping. It provides a superior decking with a built-in vapor barrier that resists corrosive influences and high humidity conditions.

For tractors and implements . . .

for cars, trucks and busses . . .

NEW HYATT BARREL BEARING!

You're looking at a cross section of industry's newest find—*the bearing that's built with barrel-shaped rollers!* Developed by Hyatt, the Barrel Bearing is of true dual-purpose design—it takes load from any direction. But more than that, the Barrel Bearing is self-aligning—and misalignment of supporting parts cannot cause excessive wear, as it does with ordinary bearings. Now in volume production, this new bearing is in the newest trucks and busses, in farm, textile and construction equipment, and in many types of oil field machinery. In fact, if you own a new car there's a good chance that Barrel Bearings are in the wheels and differential.



for construction equipment and many types of new machinery.

HYATT

STRAIGHT BARREL TAPER

ROLLER BEARINGS

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, N. J.

CLEVELAND CONTAINERS

METAL END FIBRE CANS FOR UNIT PACK AND INTERMEDIATE PACKING . . . For both MILITARY and CIVILIAN USES.

SAVE TIME in packaging . . . EXPEDITE repairs by having available spare parts needing frequent replacement.

These cans provide a continuous barrier and permit the reduction or elimination of preservatives and internal wraps.

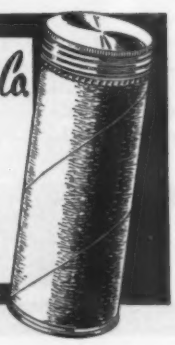
★ ★ ★

MIL-C-12147(A) MIL-C-5405 MIL-C-12804

Spare Parts and Supplies packaged in cans made under the above regulations meet all the requirements of Method 1A and Method IC, Unit Packaging, under MIL-P-116A.

This packaging is approved and currently in active use by most of the technical branches of the government. It is in rapidly growing use, also, in many civilian applications.

Substantial savings are being made daily through the use of this method of packing. Write or call us . . . We will provide the technical help.



The CLEVELAND CONTAINER Co.
6201 BARBERTON AVE. CLEVELAND 2, OHIO
• All-Fibre Cans • Combination Metal and Paper Cans
• Spirally Wound Tubes and Cores for all Purposes
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PLANTS AND SALES OFFICES: Cleveland, Chicago, Detroit, Memphis, Plymouth, Wisc., Ogdensburg, N. Y., Jamesburg, N. J. • ABRASIVE DIVISION at Cleveland.
SALES OFFICES: Grand Central Terminal Bldg., New York City; Washington Gas Light Bldg., Washington, D.C.; West Hartford, Conn.; Rochester, N.Y.
Cleveland Container Canada, Ltd.: PLANTS AND SALES OFFICES: Toronto and Prescott, Ont. • SALES OFFICE: Montreal.

A two-speed **transmission** for small trucks is made by H. S. Watson Co., Emeryville, Calif. Called the "Brownie Junior," it is available as an overdrive or an underdrive. Complete installation kits with instructions are available for all popular truck makes. The transmission provides extra gearing at a reasonable price.

An **acoustic tile** of life-time terne-coated stel is made by Tach-Fast Mfg. Co., Inc., Lonaconing, Md. The steel supports a sound absorbing blanket of woven mineral fibers. The tiles can be painted and repainted without impairing their acoustical properties.

Ozo Sales Corp., P. O. Box 141, New Haven, Conn., says its **hand dryer and rest-room deodorizer** cuts costs three ways: its cost is only 25% of other electric dryers; there are no installation costs—two bolts mount it; it eliminates towel expenses and cleaning labor.

A **faucet washer** produced by the J. A. Sexauer Mfg. Co., Inc., 2803-05 Third Ave., New York, N. Y. is made with fiberglas which withstands temperatures up to 1200 F and has a tensile strength of 460 lb compared with 80 lb for cotton duck. The fiberglas is bonded to a special du Pont compound that is impervious to all water impurities.

An inexpensive **dispenser for waterless skin cleaners,** manufactured by the Sugar Beet Products Co., Saginaw, Mich. can be easily mounted on a wall or other convenient surface and has trouble-free dispensing mechanism.

A low temperature **chilling machine** for production chilling of ball and roller bearings for stabilization is announced by Sub-Zero Products Co., Reading Road at Paddock, Cincinnati 29, Ohio. It will operate at —150 F. It has a capacity of 22 cf and a thermal capacity of 4000 Btu/hr. Forced flow of convection fluid, Freon 11, through parts basket cools 170 lb/hr steel from 80 F to —120 F.

CSI Sales Company, Solon Center Bldg., Solon, Ohio makes **a cable splice rubber tape** which is impervious to copper, has 19,000 v dielectric strength and is acid and corrosive resistant. Completely waterproof, it has extreme cohesive properties, making it possible to apply the tape lengthwise by pinching.

Office Equipment and Supplies section of PURCHASING Magazine

JANUARY, 1954

The first floor offices of the Link-Belt Company plant at Colmar, Penna., is an example of efficient arrangement for uninterrupted "work-flow".

PURCHASING MAGAZINE—A CONOVER-MAST PUBLICATION
205 EAST 42ND STREET, NEW YORK 17, N. Y.

Today's high speed adding and calculating machines

Take the "Work" Out of Figurework

By G. H. Gutekunst, Jr.

A typical printing calculator. This machine is more complex than an ordinary adding machine in that it has rapid facilities for multiplication and division. Unlike a regular calculator, however, it prints its answers on a paper tape.

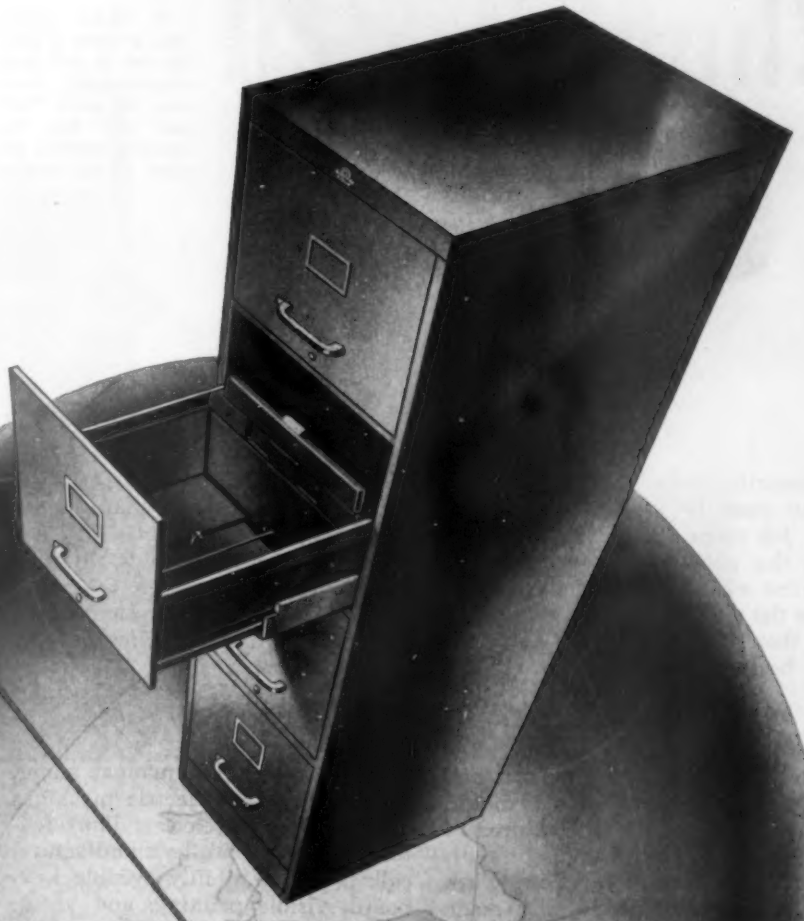
WHEN it comes to considering the purchase of adding and/or calculating machines, the prospective buyer is faced with a rather complex situation. Unlike typewriters, which are manufactured by only a few companies and which basically operate in the same manner, the adding-calculating field is much more diversified from the standpoint of operation as well as manufacture.

For the moment, let us just consider adding machines. These machines, although most of them subtract, multiply, and divide in addition to plain adding, differ from calculators in that the adding and subtracting features are their main assets and in that they print out their answers on paper tape. Most of them do their multiplication and division through repetitive addition or subtraction although a few of the manufacturers' models do handle these mathematical processes directly. In addition to the mathematical "capabilities" of the machines, there are two "standard" keyboards. One style consists of 10-keys and the other is referred to as a full keyboard. (The full keyboard has columns of numbers, 1 through 9, totalling the listing capacity of the machine.)

The difficulty in buying adders is not so much the case of "What brand do I want?" but more accurately "What job is the machine going to perform?" Again, perhaps unfortunately, it is almost impossible to standardize on one particular make and model for use throughout an entire company. While the accounting department may feel that a 10-key machine with direct multiplication feature is essential for them, engineering or production may find that the same machine does not completely serve their needs or, perhaps, be even "too good" for their use. In another case, it might be advisable for inventory control in one company to use a full keyboard to tabulate their stocks and another company find it essential to have a full keyboard machine with a "split keyboard" so that parts numbers as well as quantities can be simultaneously entered.

Basically, it all boils down to the fact that an adding machine must be "job purchased". That doesn't

WHEREVER YOU ARE... ASE FILES ARE YOUR BEST BUY!

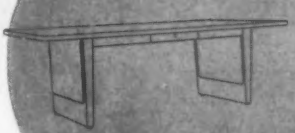


ASE

BETTER BUILT FOR BETTER BUSINESS

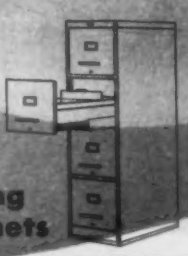
Many companies today are conclusively proving the advantages of ASE files. ASE offers you more filing capacity per unit . . . greater ease of operation . . . distinctive design . . . superior construction . . . attractive, permanent Bonderized finishes — a long list of exclusive advantages that become more and more evident to you in efficient daily service.

desks



tables

chairs



filing cabinets

blueprint files

wardrobe cabinets

see the ASE line at your dealers today.

ALL-STEEL EQUIPMENT INC. · Aurora, Illinois

A 10-key adder that provides a visible dial as well as a printed tape. Note also the extra "00" and "000" keys for inserting multiple ciphers at one stroke.

necessarily mean that a new machine must be added each time a new job crops up. It means, rather, that the potential buyer must determine what are the primary functions the machine must contend with and then decide make and model on that basis.

Many Types Available

Let's take a quick look at some of the machines on the market and let the manufacturer, or distributor, tell us what the "key" features of the machines are.

Addo Machine Co., New York City, distributors of Swedish-made Addo-X Adding Machines. Addo-X machines are 10-key manual and electric with all models providing direct subtraction and some models producing a credit balance. All machines are equipped with "Step-O-Matic" which increases the speed of multiplication by automatically transferring the figure to the next higher column.

R. C. Allen Business Machines, Inc., Grand Rapids, Mich. The R. C. Allen line consists of machines ranging from small manual adders up to 13-column electric machines. The VisOmatic (electric line) features include what the manufacturer calls Triple Visibility—visible keyboard, visible printing, and visible answer dials. R. C. Allen makes both 10-key and full keyboard machines. The VisOmatic series are all full keyboard machines.

Barrett Adding Machine Division, Lanston Monotype Co., Philadelphia, offers 10-key manual and electric machines with special emphasis on the machines' visible answer dials and automatic back space and multiply. Both manual and electric machines also feature direct subtraction.

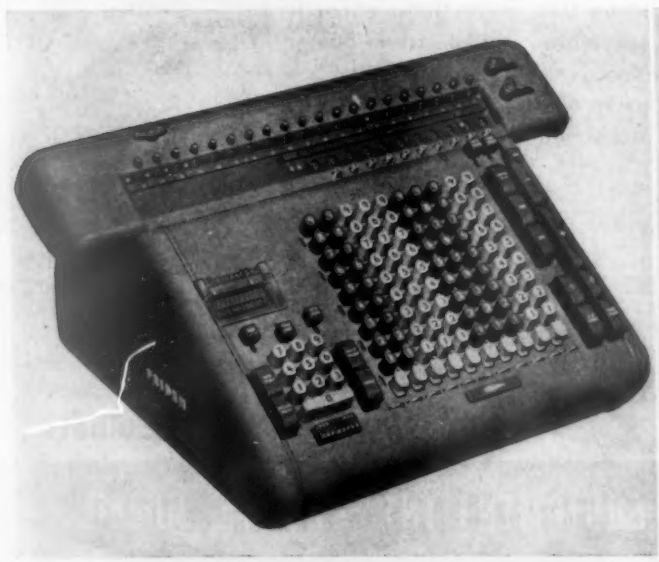
Burroughs Co., Detroit. Full keyboard manual and electric machines with special adders for totalling fractions, and split key board machines for accumulating separate totals of two classes of items. Uses Burroughs Reciprocal Table for division.

Clary Multiplier Corp., San Gabriel, Calif. Full keyboard manual and electric machines. These machines feature a Thumb Add Bar located under the columns of keys in addition to add bar in regular position on side of keyboard. Has two total keys, one on each side of keyboard. Prints credit totals. Provides space for additional key to increase listing capacity.

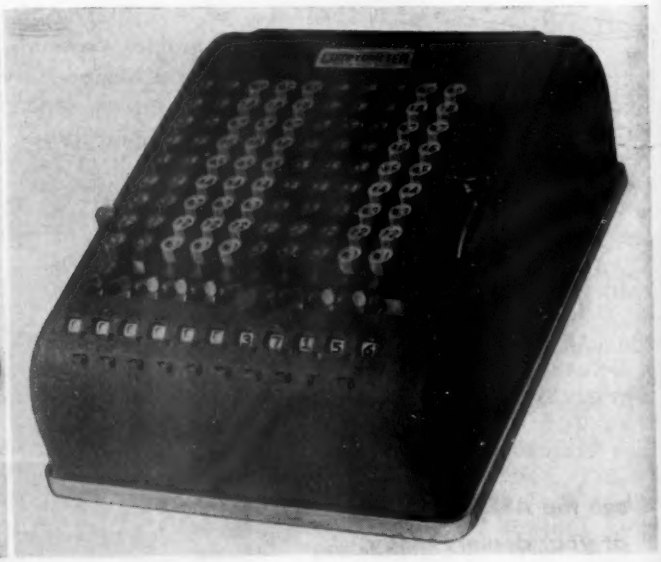
Monroe Calculating Machine Co., Inc., Orange, N. J. 10-key and full keyboard electric machines. Compact size and special slope of keyboard. Prints minus items and credit balances in red. Monroe machines can be equipped with wide or narrow carriages. Grand Total models have two registers, both with automatic negative total and subtotal feature.

National Cash Register Co., Dayton, Ohio. National "Live" Keyboard Adding Machines contain no sep-

This calculator provides a separate multiplier keyboard. Notice control keys which provide a variety of automatic mathematical operations and sequences.



This calculator has no ciphers appearing in the answer dials to the left of the last real number. It also uses a different color in the "cents" column to make it easier to read the result.



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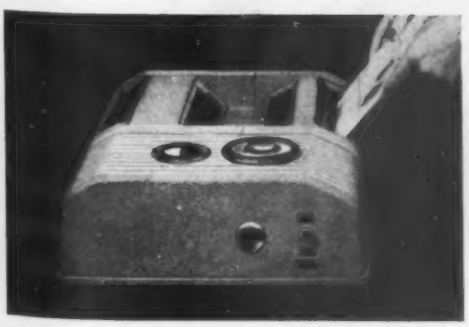
Ever happen to you?

Requests for quotations on several items must go to umpteen suppliers . . . *rush.* Typing all these requests will mean delay, and can mean costly errors, but you can't afford either possibility.

Here's where the Transcopy photocopying method is your best friend. It gets these price inquiries out of your hair . . . into the mail in a hurry . . . producing perfectly legible, perfectly accurate positive copies at better than one per minute.

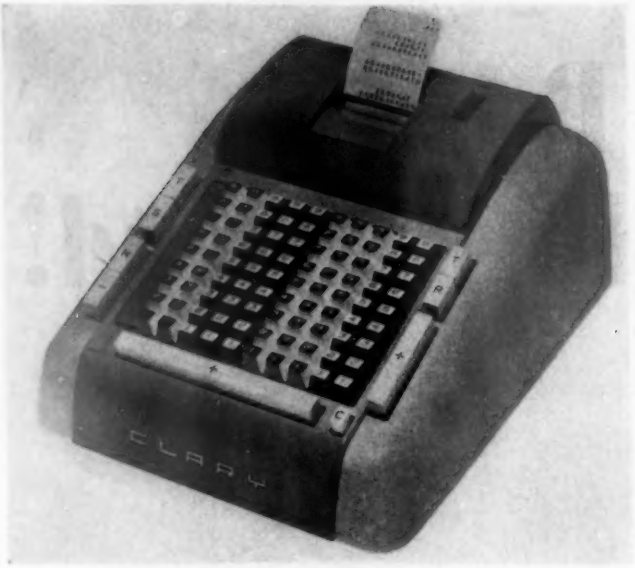
Copies of specifications, copies of quotations or correspondence . . . the Transcopy method will reproduce any record for you, either through the Transcopy-Portagraph printing and copying combination pictured above, or the all-in-one Transcopy Duplex unit, whichever suits your operation best.

For revealing data on these two solutions to any P.A.'s photocopying problems, write for folders P344 and P334 today. Just address Remington Rand, Room 1655, 315 Fourth Avenue, New York 10, N. Y. No obligation.



Remington Rand INC

PROFIT-BUILDING **IDEAS** FOR BUSINESS



This is an adding machine that uses both sides of keyboard for locating control keys. It has two "total keys" at the top, one on each side, and an additional "add bar" at the bottom for thumb operation.

arate motor bar. Complete depression of key in full keyboard enters and prints figure. Large amount is entered by partially depressing all keys except last one, which is used to enter and print amount. Prints credit and sub-credit balances. Has visible dials and operator can choose single or double spacing.

OTA-Business Machines Division, Asheville, N. C., distributors of Swiss-made Resulta Adding Machines. 10-key, electric machine featuring automatic credit balance. Has a repeat key for continued operation in addition or subtraction. Prints all sub-totals, totals and credit balances in red. Rear feet rollers facilitate moving the machine. Made in 8-column and 10-column listing capacities.

Plus Computing Machines, Inc., New York City, distributors of English-made Plus Adders and Adding-Calculators. Manual and electric adders, one style with conventional full keyboard. Other style uses columns containing figures 1 through 5. Answers not printed but appear on numbered dials at front of machine. Company also produces a Time-Currency Adder for totalling hours and minutes or hours, minutes and seconds, and dollars and cents.

Precisa Calculating Machine Co., Inc., Salt Lake City, Utah, distributors of Swiss-made Precisa machines. 10-key manual and electric machines. (Can be had with 12-keys. The two additional keys insert two or three ciphers at one time. Base of keyboard has three keys labelled 0, 00, and 000.) Features Recall Key which restores the last printed amount regardless of machine's previous operation. Prints credit balance and has automatic multiplication feature.

Remington Rand, Inc., New York City. 10-key manual and electric machines. Prints credit balance and features electrified multiplication. Column selection indicator shows number of digits entered and their columnar position for each entry before figure is printed on tape.

Smith - Corona, Syracuse, New York. Hand operated machines only. Full keyboard machines available with separate correction control key for each column. Error key clears entire keyboard. Clear signal prints automatically with first item entered on machine after previous listing is totalled.

Victor Adding Machine Co., Chicago. 10-key and full keyboards in both manual and electric models. All machines feature direct subtraction and automatic credit balance. Duo-Control Keys (sub-total and total—Non-add and repeat) located off the keyboard. Some models have decimal marker to facilitate decimal locating. 10-key machines have visible dial in addition to printed tape. All machines automatically punctuate with commas and decimals.

With the indications above, it is clearly evident that the adding machine field has much to offer the

(*Please turn to page* 290)

Unusual key board of this calculating machine is designed for one-hand operation. Note three keys marked "I", "II" and "III" for individual clearing of registers.

This adding machine not only prints out its answer but also gives result in dial at the top of the keyboard. All the major control keys are located at the right of the keyboard.

J. W. Wibel Elected Vice Pres. of Gray Manufacturing Company

The Gray Manufacturing Company, Hartford, Conn., producer of the Gray Audograph dictating equipment, has announced the election of John W. Wibel as vice president of the company. Mr. Wibel has been counsel for the company since 1945 and secretary since 1948. He is also vice president of the Audograph Company of Ohio and secretary of the Audograph Company of New York and Gray Research and Development Company, Inc., Manchester, Conn., subsidiary companies.

Sheppard Co. Has New Vice Pres.

Gerald S. Mayham

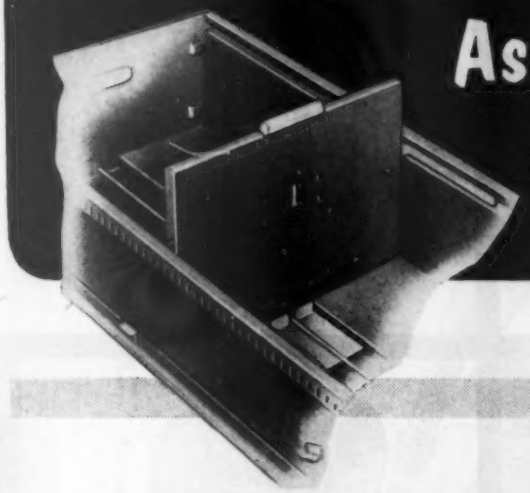
The C. E. Sheppard Company, Long Island City, N. Y., manufacturer of Cesco loose leaf equipment and business forms, has appointed Gerald S. Mayham as vice president in charge of sales.

Smith-Corona Introduces New Model "88" Office Typewriter

A completely new Smith-Corona office typewriter has been announced by Smith-Corona Inc., Syracuse, N. Y., formerly L. C. Smith & Corona Typewriters Inc.

The new model, known as the "Eighty-Eight", features an exceptionally rigid segment mounting for smoother and firmer action and a 50 per cent increase in the range of "touch" selection. Retained from earlier designs are the "Page Gage", the interchangeable platen, half-spacing and floating shift. The new machine derives its name from the four extra symbols added to the keyboard which brings the total number of keys to 88. Its color scheme is a subdued gray-green combination.

This PEERLESS FEATURE Assures EASY FILING



One of the outstanding features of the famed Peerless 6600 Series Filing Cabinets is the design and construction of the drawers. All of the drawers for these units are completely welded to assure rigidity throughout their full 26½" filing capacity. In addition the follower blocks are guided along three sides—not just one—to eliminate binding and permit papers in the back to be easily filed without jamming.

All Peerless Filing Cabinets are attractively finished in baked enamel and fitted with distinctive hardware which will harmonize with any office.

For further information, see your regular Peerless dealer, or write us for the name of a dealer near you.

All Peerless Drawers are so constructed that the follower blocks may be readily removed and frames for suspended guides substituted if preferred.

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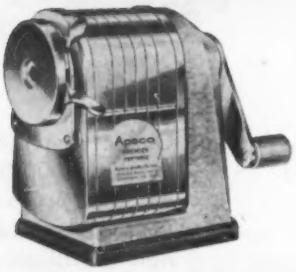
PENCIL SHARPENER PLACEMENT

ACTUALLY REDUCED OVERHEAD



AND INCREASED OUR

OFFICE EFFICIENCY."

says Virgil Waters, director of Purchasing, Utility Trailer Manufacturing Company of Los Angeles. "The huge cargo-carrying trailers we build require an infinite amount of paper work before they're completed. We must take advantage of anything that will help to reduce overhead. That's why we have increased the number of pencil sharpeners in the plant, the office, and the engineering department to help us eliminate lost motion, to increase efficiency, and to reduce errors."

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(Attach coupon to your letterhead, or business card and mail today!)

Peerless Photo "Dri-Stat" for Making Copies by "Dry" Method

A new "Dri-Stat" process for producing prints of any original material by the "dry" or transfer method has been announced by Peerless Photo Products, Inc., Shoreham, Long Island, N. Y.

The line of equipment and materials encompasses a complete range of printing and processing equipment, specially coated papers and a single processing solution. Chief among the items is a flat-bed printer that is 5¼ inches high with a bed 9 inches by 15 inches. The printer is capable of handling bulky materials such as books, bound records, or catalogs.

According to Peerless, a single movement closes the printer, turns on the light and exposes the paper. An extremely efficient lighting system provides uniform illumination over the entire printing surface, and accurate exposure control by a preset electrical timer gives clear, sharp copies. The built-in timer is claimed to be accurate to within 1/10th of a second.

Learson Named General Sales Manager in IBM Promotions

T. V. Learson, sales manager of the electric accounting machine division of International Business Machines Corporation, New York City, has been appointed IBM's general sales manager. Mr. Learson's new administrative responsibilities will embrace all four product divisions of IBM; electric accounting machine, electric typewriter, time equipment and applied sciences. Mr. Learson has served IBM in many sales executive posts, including electric accounting machine manager in the Philadelphia office and district manager in the Detroit area.

Orland M. Scott, IBM district

manager with headquarters in Cincinnati, succeeds Mr. Learson as sales manager of the electric accounting machine division. He had served also as branch manager in Terre Haute and Fort Wayne, Ind.

Bruce S. Chandler, Jr., has been named to take over Mr. Scott's post as district manager at Cincinnati. Mr. Chandler had previously served as branch manager in El Paso, Texas, and Des Moines, Iowa.

Diebold Names Buffalo Manager

Francis J. Chute

Diebold, Inc., Canton, Ohio, has appointed Francis J. Chute to the post of branch manager of the company's Buffalo office. Mr. Chute joined Diebold in October, 1947, as a systems salesman and has proven his sales ability by gaining membership in Diebold's 100% Club, an exclusive club composed of the firm's sales leaders.

McBee Names Buffalo Manager

Regis H. Kennedy has been named manager of the Buffalo office of the McBee Company, Athens, Ohio. Mr. Kennedy joined the firm in 1940 and has been assigned at various times to Buffalo, Cleveland, New York and Caracas, Venezuela.

Intercom Telephone Systems for Small Business Establishments

A new, low-cost intercom telephone system for small business establishments is announced by Ericsson Telephone Sales Corp., New York City.

The installation needs no central station or equipment. All mechanical needs are contained inside the standard size wall or desk set.

(*Please turn to page* 182)

THE PEN THAT FILLS ITSELF

- Finger grip never touches ink. No chance for ink to touch you.
- Fountain base "ink-locked" against accidental spillage. Only the pen unlocks the ink.
- Fountain base holds 40 times more ink than ordinary fountain pen. Won't leak. Won't flood. Easy to clean as a saucer.

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E1

(*Continued from page* 181)

Power supply is provided by a dry cell battery or by battery eliminator.

Ericsson telephone systems are available in a variety of telephone unit combinations. Seven basic systems are manufactured in addition to the new 2 to 8 instrument systems, and are available up to 200-unit systems.

The L. M. Ericsson organization, manufacturer of the equipment, is a Swedish company and is represented in the U. S. by the Ericsson Telephone Sales Corp.

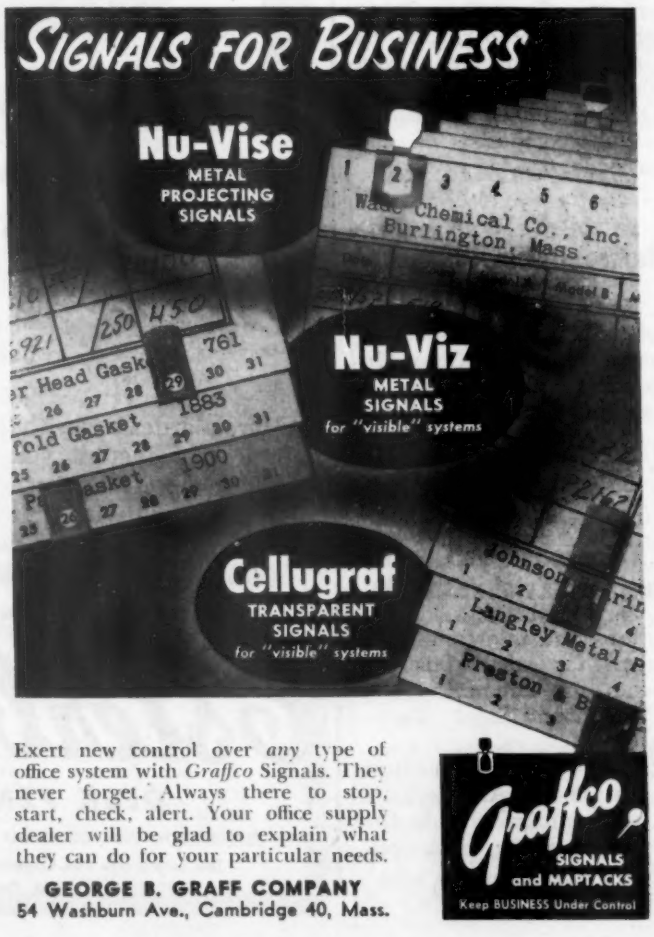
Facit Reduces Price on ESA-0

The Facit calculator model ESA-0, electrically operated and fully automatic, has been reduced in price from $550 to $495, effective immediately, according to an announcement from Facit Inc., New York City.

The ESA-O is manufactured and assembled in Sweden and is a 10-key calculator which performs addition, subtraction, multiplication and division with one hand "touch" operation. It is made of high grade Swedish steel, is rustproof and measures 11 by 7 inches.

Stapler-Plier-Tacker Has Storage for 500 Staples

A new versatile stapler made by Speed Products Company, Long Island City, N. Y., can be quickly adapted for use as a hand plier or a tacker. In addition, it has a concealed pocket which holds a reserve of 500 staples. The stapler can be put in a pocket or briefcase without having to carry a box of staples. Slipping it out of the base makes it a plier; swinging back the head makes it a tacker.



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Clary Corporation Releases New Custom Adder-Subtracter

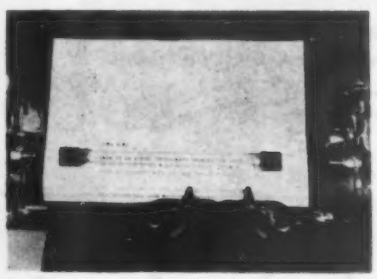
A new light-weight, heavy-duty Custom model electric adding and subtracting machine with feather-touch operation and visible identification of depressed keys has been released by Clary Multiplier Corporation, San Gabriel, Calif.

Produced in two-tone green and gray, the machine, which also multiplies and divides, features a speed of 190 cycles per minute and sound-proofed construction for almost silent performance.

It also has a keyboard with alternating rows of flat and concave key-tops to facilitate touch operation and reduce errors.

The Custom model is the first addition to the company's established Utility and DeLuxe lines which will continue to be made in the original gray color.

Transparent Typewriter Bail



A new "See-Thru" transparent bail for all makes of typewriters is being marketed by Maroth-Kennedy Corporation, Greenwich, Conn. The new device eliminates the blind spot created by the old type bail and thus permits the typist to read all copy typed without lifting the bail. Although transparent, the bail is available with scale marked for either pica or elite type. Installation is immediate.

Nameplates Made in Small Lots at Low Unit Cost

A new process produces small quantities of nameplates at low unit cost. Henry G. Dietz Co., 12-16 Astoria Blvd., Long Island City 2, N.Y., says that 10 reproductions can be made at a unit cost almost as cheaply as for a quantity of 500. Nameplates can be supplied on any non-porous surface such as metal, aluminum, glass, etc. They are also available on .003" thickness of aluminum foil backed with a high tensile bonding material. They may be produced in a variety of colors.

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Webster's MultiKopy MICROMETRIC Carbon Papers — For years the best, and still out in front. This is the quality carbon made famous by the Micrometric scale edge that measures the typing space on the page — prevents errors.

Webster's MultiKopy PENCIL Carbon Papers — *100 impressions*, legible and lasting, from every sheet of this carbon.

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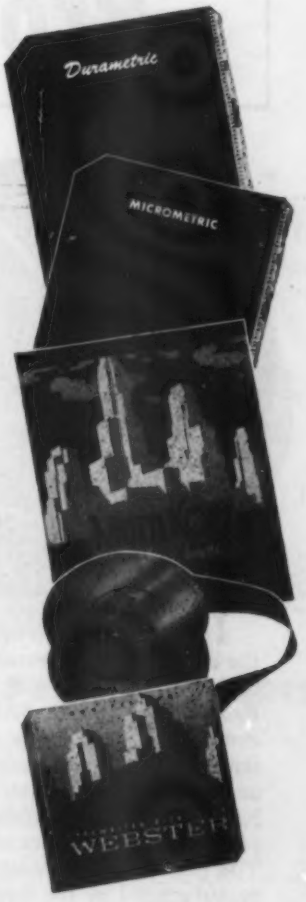
Webster's MultiKopy Typewriter Ribbons — Need changing only half as often as standard ribbons. Made in extra lengths with special ink formulas for every typewriter.



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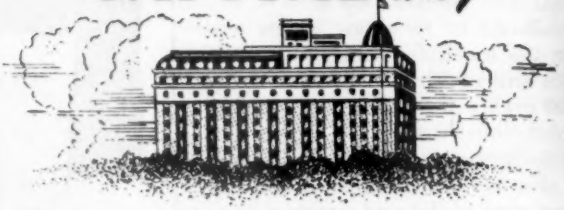

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How to use tested methods to develop and revise standards—how to organize and use a nomenclature system—how to allocate standards activities, responsibilities and authority—how to organize company standards—all these and more are explained thoroughly and concisely in this practical guidebook to industrial standardization.

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AMONG THE Associations

NIGP Conference Delegates Discuss Economy In Governmental Purchasing

From 2:30 p.m. Sunday, November 8th, when the Products Exhibit was opened, until 3:00 p.m. Wednesday, when the closing gavel sounded, serious sessions discussing governmental purchasing procedures held the undivided attention of the more than 250 delegates to the Eighth Annual Conference of the National Institute of Governmental Purchasing held at the Netherland-Plaza Hotel in Cincinnati, Ohio. Perhaps the finest summary and tribute to the aims and value of the NIGP group was revealed in a letter read by NIGP President Leo Weil, city commissioner of purchases and supplies, Cleveland. It stated, in part;

"We are engaged in the important task of eliminating waste and extravagance in the operations of our government. In this effort, the role of the purchasing executive is crucial. Not only must he be competent and of impeachable integrity, but he must also be skilled professionally in order to obtain the greatest value in return for the tax dollars expended for equipment and supplies. Economy and thrift in local, state and federal government are, therefore, the reward of all Americans as your organization continues to raise the professional standards applied in public buying."

The letter was signed — "Dwight Eisenhower".

Although Sunday, November 8th, scheduled no discussions or talks, more than 100 delegates registered and had the opportunity to visit the display area and attend the informal supper in the evening with Morton Downey and his trio providing entertainment. The exhibit area, which was open throughout the course of the conference, was composed of a wide assortment of products—from surgical sutures through decalcomanias and even contained such

Hon. Carl W. Rich, mayor of Cincinnati, welcomes the NIGP delegates to the city.

W. R. Kellogg, city manager of Cincinnati, cuts the tape opening the 1953 Products Exhibit. Watching the proceedings are, left to right: Clark Q. Cline, chairman, NIGP Exhibitors Advisory Committee and manager, Government Department, Lily Tulip Cup Corporation, New York City; Leo Weil, president of NIGP and commissioner of purchases and supplies, Cleveland; and John G. Krieg, general conference chairman and city purchasing agent of Cincinnati.

Three NIGP delegates meet two distinguished guests before the luncheon on Monday. Left to right: Edmund F. Mansure, administrator, GSA, Washington, D. C., guest speaker; Martin Marques Jr., director, Government Service Office, Commonwealth of Puerto Rico; Brigadier General C. H. Mitchell, USAF, Wright Patterson Air Force Base, Ohio, luncheon guest: John F. Ward, city purchasing agent, Chicago; and Joseph W. Nicholson, city purchasing agent, Milwaukee, Wis.

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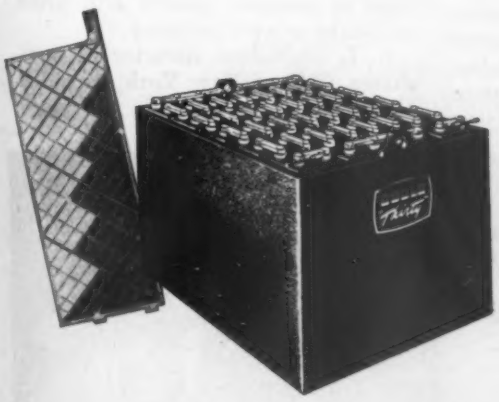
THANKS TO BATTERY POWER!

Use battery-power for your industrial trucks and you've got high-level performance for low-cost handling. Today's trucks give you the higher lifts, shorter turns, faster maneuverability and greater adaptability necessary to meet modern handling needs. Only battery trucks are silent, safe, and fume-free. And, remember, there's *no* battery power like *Gould* power. *Insist* on *Gould!*



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Always Use Gould-National Automobile and Truck Batteries

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(*Continued from page* 186)

items as a "jeep" and boxes of cereal. One particularly busy corner of the area contained the Coca Cola booth, which was to dispense nearly 2500 free "cokes", flanked by the Doughnut Corporation of America which provided the other half of a refreshment "team".

On Monday morning, however, the conference went into high gear with a "Welcome" address by John G. Krieg, general conference chairman and purchasing agent for the City of Cincinnati. Mr. Krieg hailed the 1953 conference as "another milestone in the progress of our Institute" and pointed out that it was most essential to realize that there was still much to be done to assure NIGP of its proper importance in aiding governmental purchasing.

"We must continue to be on the alert for ideas and methods to improve our own performance and at the same time be willing to pass on to our colleagues any information which we feel might be of value in resolving any of the numerous problems encountered in the field of governmental purchasing," he said.

Following a short address by Clark Q. Kline, governmental department, Lily Tulip Cup Corporation, and chairman of the NIGP Exhibitors Advisory Committee for 1953, Leo Weil spoke to the assembled delegates on "More Value For the Tax Dollar".

Purchasing has become professionalized, Mr. Weil pointed out, and is assuming a more important role in "top management" than ever before. In addition, purchasing problems have become more complex through the fact that purchasing officers must now deal with financing and budgeting, specifications and standardization, and contracts and programs.

"More value for the tax dollar can be obtained by adhering strictly to the principles of competitive bidding," he said. "That competition has a salutary effect upon price, will not be denied. The minimum price of an article is measured by the cost of production, while the maximum is measured by the profit that can be exacted by the producer."

Following Mr. Weil's talk was the first in a series of panel and round table discussions. Using two groups, one representing government and the other industry, the delegates heard a forceful discourse on "Making It Easier to Do Business with Government." Representing government were: C. L. Magnuson, supervisor of purchases, State of Connecticut; Robert W. Sollinger, county purchasing agent, Onondaga County, N. Y.; and Wade H. Hannah, city purchasing agent, Columbia, S. C. On the team representing industry were: Fred Weber, manager, Institutional Division, Ralston Purina Company, St. Louis, Mo.; Larry Moriarty, sales manager, Weber Dental Manufacturing Co., Canton, Ohio; and Jon Hedu, advertising manager, Watertown Manufacturing Co., Watertown, Conn. Floor Microphones strategically placed throughout the conference room facilitated questions and discussions from the listening and participating delegates.

Wade Hannah, city purchasing agent, Columbia, S. C., takes the floor during a panel discussion on "Making It Easier to Do Business with Government".

The afternoon's session began with an official luncheon with President Weil presiding. Hon. Carl W. Rich, mayor of Cincinnati, officially welcomed the conference to the city. The feature speaker at the luncheon was Edmund F. Mansure, administrator, General Services Administration, Washington, D. C.

Business concerns interested in selling to government also have a responsibility in making industry-government purchasing relationships easier, Mr. Mansure told the NIGP delegates.

"Who should do the **making,** in 'Making It Easier To Do Business With Government'?" Mr. Mansure asked.

It is a common responsibility, he pointed out, that must be shared by seller and buyer alike. The purchaser should make available full publicity on purchases, specifications, rules and regulations, while it is in the salesman's interest to treat governmental buyers in the same capacity as "another customer."

"You should try to make him (the salesman) understand that the responsibility he has toward you is the same as he has toward his private customers."

He pointed out that just as in private industry, the salesman's "know-how" is the dominating factor in making a transaction. The governmental purchaser must view any product purely from a "clinical" standpoint and in the final analysis must determine his purchase on the basis of service, quality and price just as in private industry.

A. L. McMillan, director of purchases, City of New York, presided

(*Please turn to page* 190)

Traffic signs utilizing "scotch-lite" were real eyestoppers.

One of the exhibit booths in the display area.

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Hy-Pro centers its operation on solving tap problems . . . problems which can cost you time and dollars. Because taps are Hy-Pro's important line, they continually concentrate their research and creative staff at analyzing and improving every phase of tap use. The result has been their proven reputation in production circles as the "Tap Specialists."

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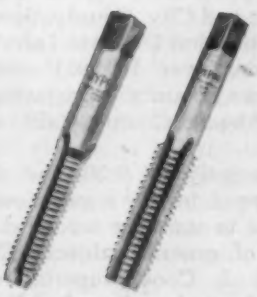

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(*Continued from page* 188)

at the afternoon session. Ernest J. Brewer, city purchasing agent, Atlanta, Ga., presented a paper on "Controlling Rush Orders" and Gilbert L. Guetzkow, director of priorities and allocations, Milwaukee, Wis., joined Arthur G. Eaton, director, Procurement Division, Federal Civilian Defense Administration, Washington, D. C., in a discussion on "Purchasing for Civilian Defense."

Tuesday's conference program began early with special breakfast meetings for public purchasing executives. They were divided up into State Purchasing Agents with B. H. Lowry, director, Division of Purchases, Commonwealth of Kentucky,

Willis S. MacLeod, director, Standards Branch, Federal Supply Service, GSA, Washington, D.C., draws a humorous conclusion in his talk "Building A Specifications Library In Your Purchasing Agency" to the delight of Chairman L. J. Cook, superintendent of school supplies, Board of Education, New York City.

as chairman; Educational Buyers under the chairmanship of S. Gordon Rudy, secretary-business manager, School District of York, Penna.; City, County, Special Authorities and Districts under Hans P. Nelson, city purchasing agent, Davenport, Iowa; and City, County, Special Authorities and Districts (serving populations over 150,000) with J. W. Hughes, county purchasing agent, Los Angeles County, Calif., as chairman.

Promptly at 9:30, the delegates convened in the regular conference rooms to start the second day's session of general subjects. Chairman Louis J. Cook, superintendent of school supplies, Board of Education, New York City, introduced the morning's speakers. William J. Burke, city purchasing agent, Corpus Christi, Texas, presented his paper on "Preference To Local Bidders" and Albert Pleydell, Albert Pleydell Associates, Inc., New York City, former president of NIGP and former commissioner of purchases, New York City, spoke on "How To Evaluate The Efficiency Of A Public Purchasing Agency." (Both of these papers appear elsewhere in this month's issue of PURCHASING.) The conference delegates also heard Alex Pilch, director, Research and Information Department, City of Dearborn, Mich., point out the extreme value of "Developing A Public Relations Program For A Public Purchasing Agency." The final speaker at this session was Willis S. MacLeod, director, Standards Branch, Federal Supply Service, GSA, Washington, D. C., who outlined the important steps in "Building A Specifications Library In Your Purchasing Agency".

At the Tuesday luncheon, W. R. Kellogg, city manager of Cincinnati, greeted the delegates and turned the meeting over to the main speaker, John A. Lloyd, vice president, Union Central Life Insurance Company, Cincinnati.

As it was the day before Armistice Day, Mr. Lloyd directed his remarks toward the meaning of America and Americanism. He drew comparisons between America of "yesterday" and America Today and paid tribute to the nation's honored dead.

The afternoon's session was devoted to papers on products. Two of these—one on soaps and detergents and the other on textiles—were grouped under a common heading, "What's New and What Does the Future Hold for:—Soaps and Detergents—Textiles?" Mr. T. J. Wrocklage, manager, Bulk Soap Sales Department, Proctor and Gamble Distributing Co., Cincinnati, and Alfred Silverman, executive vice president, Angelica Uniform Co., St. Louis, Mo., were the speakers. "Specifications and Purchasing Techniques for Disinfectants And Insecticides" was the subject of H. W. Hamilton, secretary, Chemical Specialties Manufacturers Association, Inc., New York City. Michael M. Donohue, county purchasing agent, Allegheny County, Pa., presided.

The final day's activities began in the same fashion as Tuesday's with the special breakfast meetings. Subjects which had been under discussion the previous day were finalized and additional problems were handled by the groups.

During the regular morning session, a round table discussion on "Rental Versus Ownership Of Public Motor Vehicles" brought forth an enthusiastic response. Panel members L'oyd M. Head, city purchasing agent, Jackson, Mich., and Herbert Winston, Jr., city purchasing agent, Greensboro, N. C., were joined by members of NIGP from the floor in discussing the subject. After completion of the issues at hand, Chairman Harry J. Aston, director, Division of Central Purchases, Newark, N. J., introduced Roland M. Brennan, procurement officer, District of Columbia, and A. J. Holm, city purchasing agent, Los Angeles, Calif., and chairman, NIGP Committee on Federal Excise Tax on Automotive Parts, who reviewed "Federal Excise Taxes."

"The controversial issue to raise additional taxes by a broad manufacturers' tax would affect every person in the United States," Mr. Brennan declared. "Conceivably,

(*Please turn to page* 196)

Leo Weil, NIGP president, (left) and C. L. Magnuson, NIGP vice president and supervisor of purchases, State of Connecticut, (right) greet Edmund F. Mansure. Mr. Magnuson is the newly elected president of NIGP.

GATE VALVE *(upper left)* **Fig. 2194** for 225 pounds W.O.G. Screwed ends, bolted flanged bonnet, inside screw rising stem. Body and bonnet are made of Ni-Resist, with 18-8S Mo Stainless Steel (Type 316) stem, seats, and wedge. Sizes ½" to 2", inclusive.

GATE VALVE *(upper right)* **Fig. 2195** for 200 pounds W.O.G. Flanged ends, bolted flanged bonnet, inside screw rising stem. Ni-Resist body and bonnet, with stem, seats, and wedge made of 18-8S Mo (Type 316) Stainless Steel. Sizes 1" to 3", inclusive.

GATE VALVE *(lower left)* **Fig. 2193** for 200 pounds W.O.G. Flanged ends, bolted flanged bonnet, outside screw rising stem and one-piece yoke. Body, bonnet, and yoke are Ni-Resist. Stem, seats, and wedge are 18-8S Mo (Type 316) Stainless Steel. Size 4".

LARGE SIZE GATE VALVE *(lower right)* **Fig. 2193,** 5" to 12", inclusive, for 200 pounds W.O.G. Flanged ends, bolted flanged bonnet, outside screw rising stem and two-piece yoke. Ni-Resist body, bonnet, and yoke, with 18-8S Mo (Type 316) Stainless Steel stem, seats and wedge faces.

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New Virginia Association Is Formed At Richmond Meeting

Nearly 50 purchasing agents met for an organizational meeting at the Hotel Jefferson, Richmond, Va., at which time the Purchasing Agents Association of Virginia was formed. The group elected officers and directors and passed on their constitution and by-laws. Purchasing agents from Bristol, Elkton, Winchester, Charlottesville, Fredericksburg, Roanoke, Salem, Norfolk, Franklin, Richmond, etc., made up the group. The group adopted a 4-meeting plan as follows: Winter, Richmond; Spring, Norfolk; Summer, Hot Springs; Fall, Roanoke.

Officers for the coming year are: J. E. Friend, manager, General Service Dept., Federal Reserve Bank of Richmond, president; C. L. Hook, purchasing manager, Merck & Company, Inc., Elkton, 1st vice president; G. A. Ringer, purchasing agent, Ford Motor Co., Norfolk, 2nd vice president; G. W. Grant, supply purchasing manager, Miller & Rhoads, Inc., Richmond, secretary; R. F. Misfeldt, purchasing agent, Celanese Corporation of America, Hopewell, treasurer; and A. J. Dickinson, vice president, Virginia-Carolina Chemical Corp., Richmond, national director. The five directors are; J. V. Eddy, National Fruit Pdt. Co., Inc., Winchester; R. W. Rogers, Seaboard Air Line Railroad Co., Norfolk; C. C. Helms, Virginia Hot Springs, Inc., Hot Springs; H. A. Atkins, Philip Morris & Co., Ltd., Richmond; and R. B. Moss, City of Roanoke purchasing agent.

C. Warner McVicar was guest speaker at a recent meeting of the Cincinnati Association of Purchasing Agents with "The Value of a Purchasing Manual to Purchasing and Management' as his topic. Seated, left to right: Ed Rabe, treasurer; H. P. Ramsey, chairman of Education Committee; and Ed Hageny, trustee. Standing: Lynn Percival, trustee; Tom Scahill, national director; John Teipel, president; C. W. McVicar, the guest speaker; Vincent Luebbe, secretary; and Al Burke, vice president.

TennVa. Learns "What Management Expects of Purchasing" at Meet

The Franklin Club at Elizabethton, Tenn., was the site of the November meeting of the TennVa Association of Purchasing Agents. John Campbell of Mason & Dixon Lines, led off the program with a report on the 7th District, N.A.P.A., Conference held in Jackson, Miss.

The main speaker for the evening was F. L. Wallace, president of Summers Hardware Co., Johnson City, Tenn., who discussed "What Management Expects of Purchasing". He brought out the importance of good purchasing and what the buyer should know. He stressed the importance of an accurate knowledge of market conditions and trends and the invaluable importance of being courteous and considerate towards those with whom he has contact. In summing up, Mr. Wallace expressed his optimism for a continued increase in demand for materials and products which he felt would be brought about from the needs of an increasing population throughout the world.

"CONTROL BOARD"—The new officers of the Purchasing Agents Association of Rock River Valley (Illinois). Seated, left to right: W. T. Whitcomb, Eclipse Fuel & Engineering Co., 2nd vice president; A. R. Middleton, The Weiman Co., national director; O. C. Sanders, Parker Pen Co., president; and G. C. Minehart, Twin Disc Clutch Co., 1st vice president. Standing: L. C. Bauer, Fairbanks Morse & Co., director; A. G. Wilson, Reynolds Wire Co., director; P. J. Donohue, Conco Engineering Works, treasurer; and C. S. Steward, J. I. Case Co., secretary.

A PANEL of purchasing agents from the Denver Association and members of the Denver Sales Executives Council discussed problems common to both groups. Seated, left to right: R. F. Martinec, purchasing agent, City and County of Denver; K. D. Carlston, branch manager, International Harvester Co.; W. R. Spaur, president, Purchasing Agents Association of Denver; N. L. Sheets, national director of the association and moderator; B. S. Rosen, general agent, State Mutual Life Assurance Co.; C. W. Manning, purchasing agent, University of Denver; and J. M. Fincham, sales manager, The McCoy Co. Standing: R. Grant, division sales manager, Armco Drainage & Metal Products Co.; R. E. Green, regional purchasing agent, The California Co.; and J. F. Gabriel, purchasing agent, Denver & Rio Grande Western RR Co.

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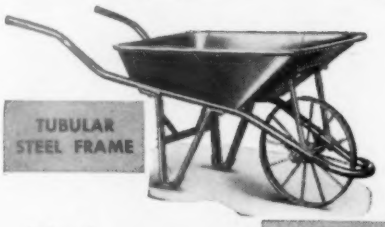

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NIGP Conference Discusses Economy in Purchasing

(*Continued from page* 190)

there could be a pyramiding result because of mark ups all along the line from the factory to retailers' shelves."

In view of the fact that states, counties and cities are exempt, under present laws, from payment of excise taxes, Mr. Brennan pointed out the importance of the NIGP not only keeping watch on such a tax development but actually expressing its opinion through suggestions and recommendations to hold down prices which would automatically increase should such a law be enacted.

At 11:00 a.m., the delegates stood in a moment of silence in honor of America's war dead. Immediately following the "period of silence", Leo Weil paid tribute to memory of the late president of NIGP, Carl Riggs of West Virginia.

"He had a tenacious faith in the professional aims and programs of the Institute." he said. "With quiet courage, he fought for the advancement of NIGP."

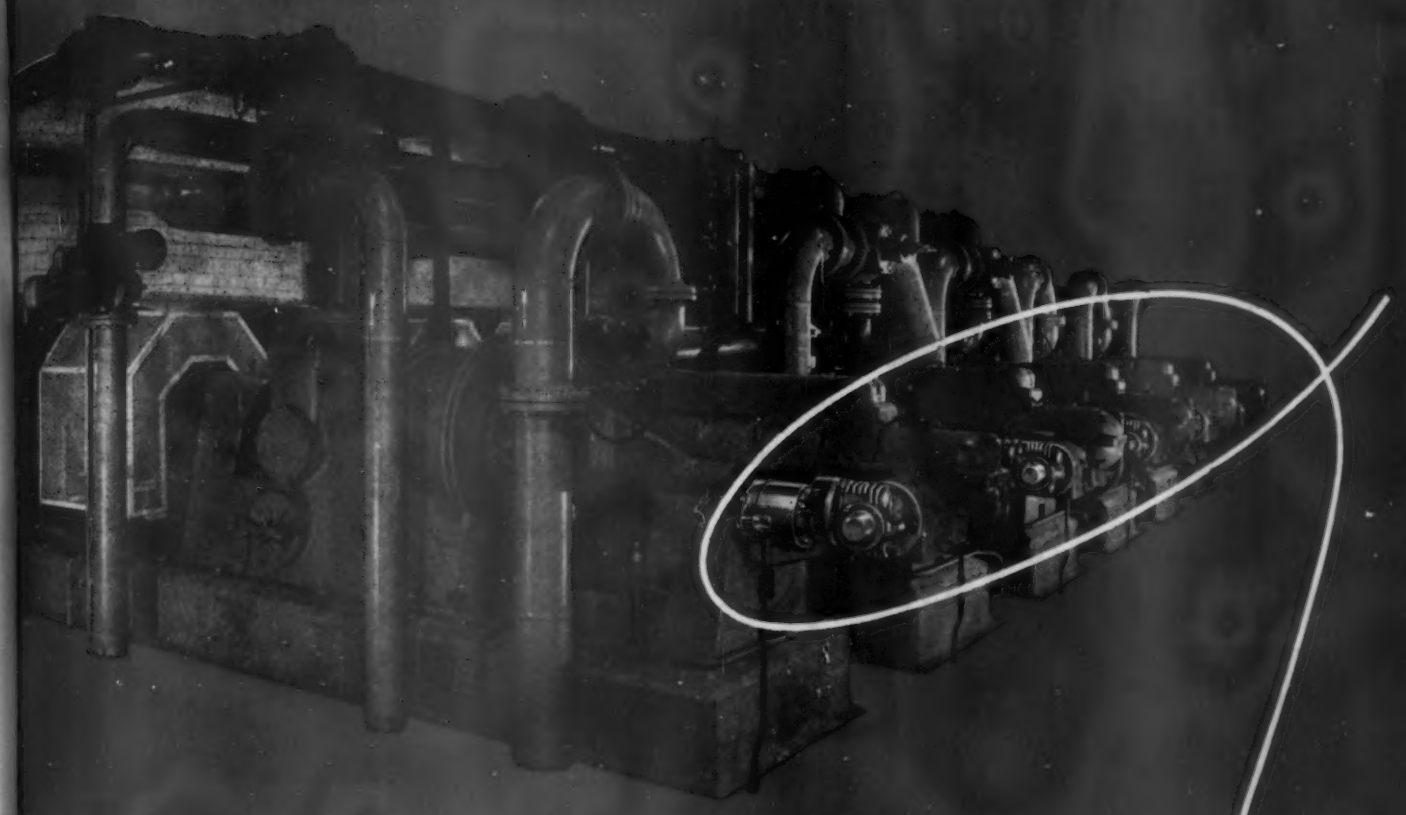
Joseph W. Nicholson, city purchasing agent, Milwaukee, Wisc., followed Mr. Weil and paid tribute to the late George Henry, associate editor of PURCHASING.

"At all of our conferences," Mr. Nicholson said, "George Henry sat in one of the front rows with his camera and busy pencil. He had the ability to depict most clearly the essence of an important matter. He was imbued with a desire to further the principles of sound and efficient public purchasing."

The final item on the NIGP schedule was a problem clinic dealing with "Public Purchasing Problems" under the chairmanship of John F. Ward, city purchasing agent, Chicago. Problems brought up on the floor were discussed with all delegates participating. Primarily, the problems of trading in or selling used public vehicles and what to do about surplus property formed the backbone of these discussions.

Just before the final gavel sounded, Albert H. Hall, executive director of NIGP, thanked the delegates and all the committee members for contributing so much to the success of the conference. It was also announced that the 1954 NIGP conference would be held in New York City.

CLASSIFIED SECTION SEE PAGE 306



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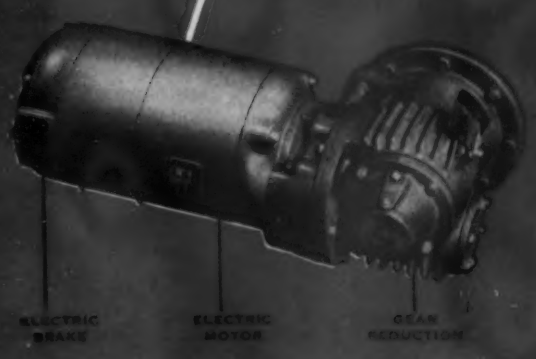

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Montreal Ass'n Hears N.A.P.A. President E. F. Andrews In Nov.

President E. F. Andrews was the feature speaker at the November meeting of the Purchasing Agents Association of Montreal, held at the Sheraton-Mount Royal Hotel.

Also, the association made known its attempt to prepare a "Certificate of Service" based on a point score. The association has determined points for certain factors (1 point for each year as a member, 25 points president of association, etc.) with a total score of 100 points or more necessary for the certificate.

New Orleans Holds Thanksgiving Party At Metairie Country Club

Hailed as "the greatest event since the landing of the pilgrims", the Purchasing Agents Association of New Orleans held their Fall dinner-dance in the Ball Room of the Metairie Country Club on November 25th. This was a Thanksgiving Party for members, their ladies and guests. Following a delicious buffet dinner, the evening was turned over to dancing. "Blue" Prestopnik and his 8-piece orchestra provided the music with Margie O'Dair, singing star of radio station WWL, as an added attraction.

Cleveland Honors Association's Past Presidents At Nov. Meet

The regular November meeting of the Purchasing Agents Association of Cleveland was designated as "Past Presidents Night" to honor the men who had given generously of their time and themselves to the association. E. F. Andrews, president of N.A.P.A., was the guest speaker. Before the regular meeting, a Forum Meeting was held with the subject "What Are We Doing About Rising Prices?" under discussion. O. J. Carner was the moderator and J. Vincent Collins and Frank J. DeCrane serving on the panel.

Roger Coe Tells New England Ass'n About "Atomic Energy"

"Atomic Energy Today and Tomorrow" was the subject of the address by Roger Coe of the New England Electric System of the November meeting of the New England Purchasing Agents Association. At an afternoon conference, "Vendor Relations" were discussed with Donald Holbrook acting as moderator.

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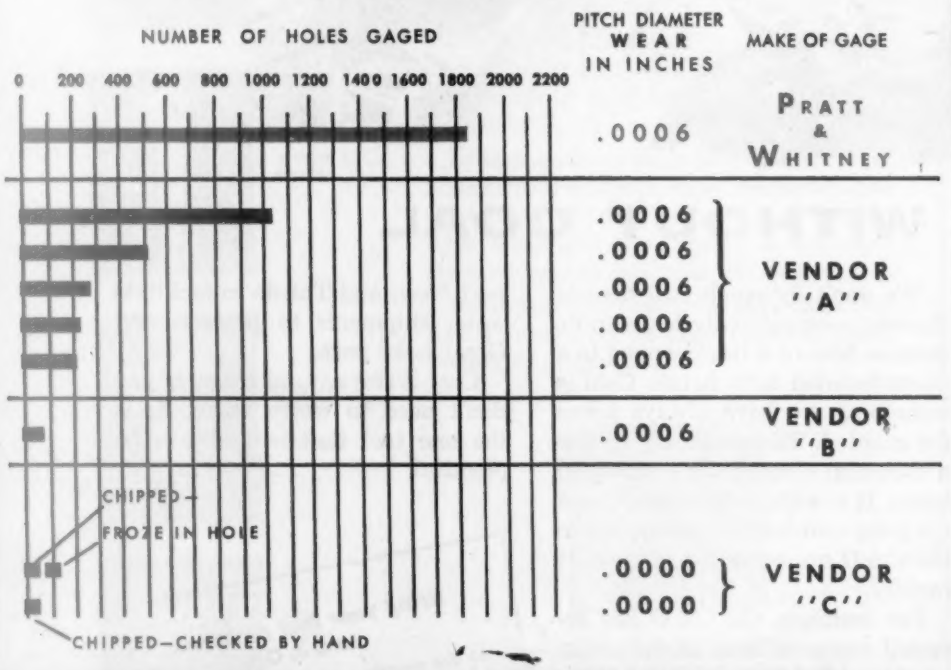

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Dayton Ass'n Gives Plaques During Past Presidents Night

The November meeting of the Purchasing Agents Association of Dayton was distinguished by the presentation of plaques to past presidents of the association. Seventeen of the twenty-one past presidents were on hand to receive their plaques. The guest speaker for the evening was Frank Lyons, General Motors' public relations officer for Dayton. His subject was "Invitation to Disaster", in which he vividly portrayed the General Motors fire at the transmission plant in Livonia, Mich. The emphasis was not so much on the calamity, but rather on the teamwork and emergency measures that put the plant back into production.

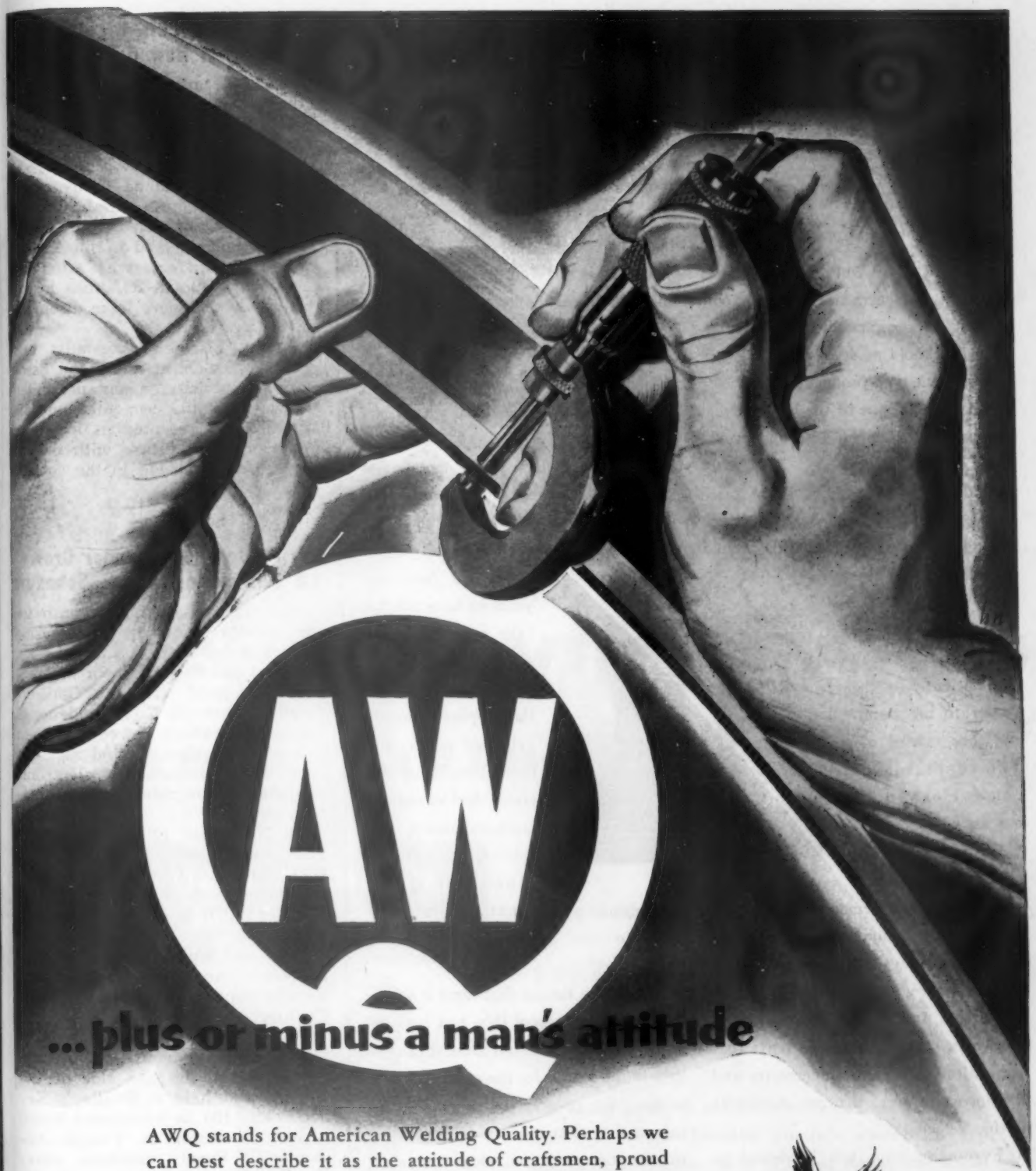
It was announced that the January meeting would be the fourth annual Tri-City joint meeting of the Cincinnati, Dayton and Springfield associations at the Miami, Ohio, Hotel. March was designated as the proposed joint meeting between the Dayton association and the Production Control Managers Association tentatively scheduled for the National Cash Register Company.

Future Of Steel Industry Told To Lehigh Valley Association

"Where Do We Go From Here", concerning the future of the steel industry, was the title of an address by D. C. Roscoe, assistant general manager of sales, Bethlehem Steel Co., presented to the Lehigh Valley Purchasing Agents Association. Earl Sinclair, chairman of the meeting, introduced the speaker. Also on the meeting's agenda was the acceptance of new members. They were: Harry E. Patterson, E. C. Davis, Wayne W. Henderson, and Albert J. Strauss.

Montreal Purchasing Agents See Rolland Paper Company Mill

The Rolland Paper Company, Ltd., paper mill at St. Jerome, Que., was visited by members of the Purchasing Agents Association of Montreal on Saturday, November 21st. Although established in 1882, being the first fine paper mill in Canada, it has the latest equipment for the making of paper as well as handling devices, a factor which proved of great interest to the visiting purchasing agents. The visit was made possible through the invitation of Lucien and Andre Rolland.



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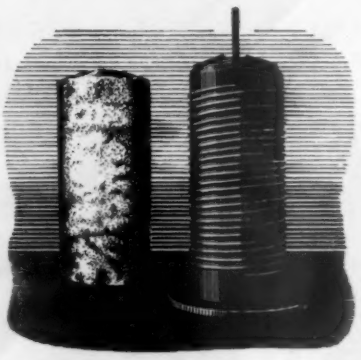
BUSINESS IN MOTION

To our Colleagues in American Business ...

Titanium melts at 3140° F., and copper at 1980° F. Hence most people would think it utterly impossible to melt titanium in a mold made of copper. Yet it is being done on a production basis. The trick is to make use of the high thermal conductivity of copper. The copper mold has a copper baffle wrapped in a spiral around it, and is inserted in a water jacket. Water is pumped at high velocity through the jacket, and spirals around the outside of the mold. Heat from the molten titanium is transferred quickly and efficiently by the copper to the water, and thus carried off. The copper never comes close to its melting point.



• This remarkable application of copper is just a part of the tremendous activity in the field of titanium. Many companies are seeking ways to produce metallic titanium in large tonnages and at reasonable prices. Among other applications, it is used in certain jet engine parts that are subjected to high temperatures and the impact of gases that are moving at terrific velocities.

• Eventually ways will be found to produce titanium in large volume at practical prices. This will be a great boon. It is the fourth most abundant metal in the earth's crust, only aluminum, iron and magnesium being present in greater amounts. It can be easily forged, welded, and hot worked. There is every indication that it is a metal with a tremendous future.

• Copper is man's oldest metal, and titanium the newest. In this ingenious copper mold the old assists in the birth of the new. Copper serves in this way so often that for many years we have called it "the metal of invention." It helped make possible the telegraph, the telephone, electric light and power, and the multitudinous electronic devices used in communications, calculation, and medicine. For many centuries man has sought and found new ways to take advantage of copper's unique qualities.

• It seems to Revere that there is something significant about this. Just because a material is old does not mean it cannot help in the search for the new, and thus advance the progress of us all. So we suggest that when modern developments engage your attention, older materials may be of assistance in reaching your objectives.

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Dramatic Skit Highlights Meeting of New Orleans Ass'n

The November meeting of the Purchasing Agents Association of New Orleans was highlighted by a dramatic skit presented by Paul V. Grambsch, associate professor of management, Tulane University's School of Business Administration. Professor Grambsch was assisted by Jerry Daniel and Bill Baker, two of his students who acted out scenes on "Human Relations in Industry" which were later discussed by the professor.

Robert Elsasser, economist and regular speaker at all of the association meetings, again presented his views on the economic outlook. Mr. Elsasser presented an optimistic picture for the future with only a slight drop indicated in the coming year.

Visit, Luncheon, Dinner Crowd LA Association's Nov. Schedule

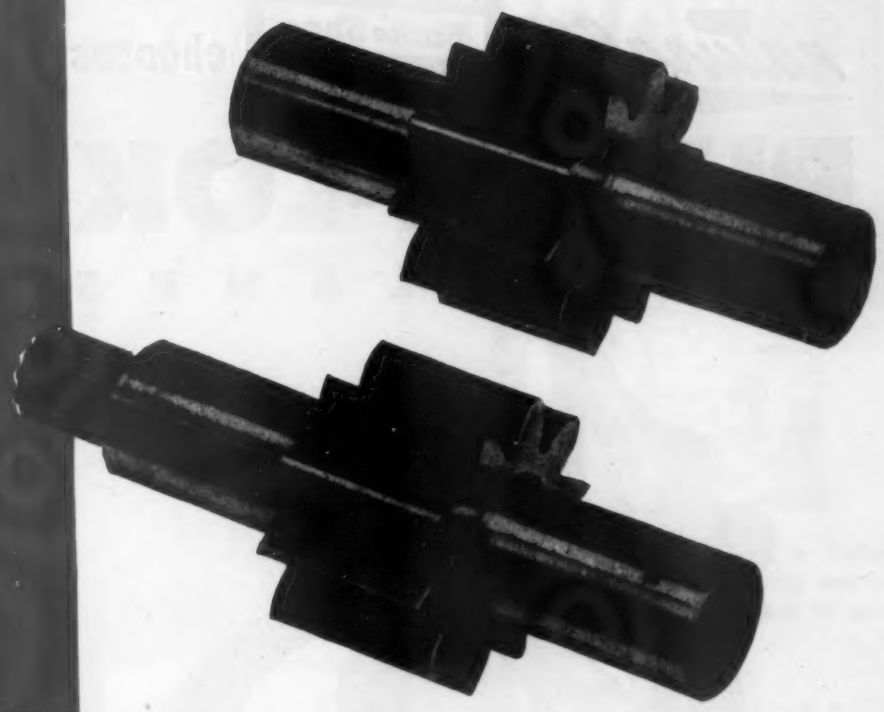
November was a busy month for the members of the Purchasing Agents Association of Los Angeles. The first plant visitation of the new year was held with the Consolidated Engineering Co., Pasadena, as host. 150 members toured the plant to see the equipment and methods used in manufacturing electronic equipment, computers, spectrometers, etc.

On November 12th, the association dinner meeting was held in the Elks Club with two guest speakers. Lt. General Ira C. Eaker, vice president of Hughes Tool Company, spoke on "50 Years of Human Flight", and Waldo Dean Waterman addressed the group on "Personal Recollections of California's Half-Century of Aviation."

On November 24th the first luncheon for the benefit of purchasing agents on the east side of Los Angeles was held at Swalley's Key Club. The 106 in attendance heard a panel discussion on "Freight Absorption". Panel members were: Ray Zell, Union Oil Company, chairman; Hugh Stedman, National Supply Co.; R. J. Coleman, C. F. Braun & Co.; and Virgil Waters, Utility Trailer Co.

Buffalo Hears Hugh Johnson

The November meeting of the Purchasing Agents Association of Buffalo was designated as "Executive Night". Hugh Johnson, investment counselor, was the speaker of the evening.



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This SIMPLICITY OF DESIGN is important for these reasons!

- *reliability—less chance of pump malfunction*
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- *less cost for overhaul*
- *less weight . . . less noise*

Add *Pesco Simplicity of Design* to Pesco's *exclusive,* patented "Pressure Loading" principle, which results in volumetric efficiencies up to 97% and torque efficiencies up to 90%, and you have two important reasons why so many industrial and aircraft manufacturers have standardized on Pesco pumps.

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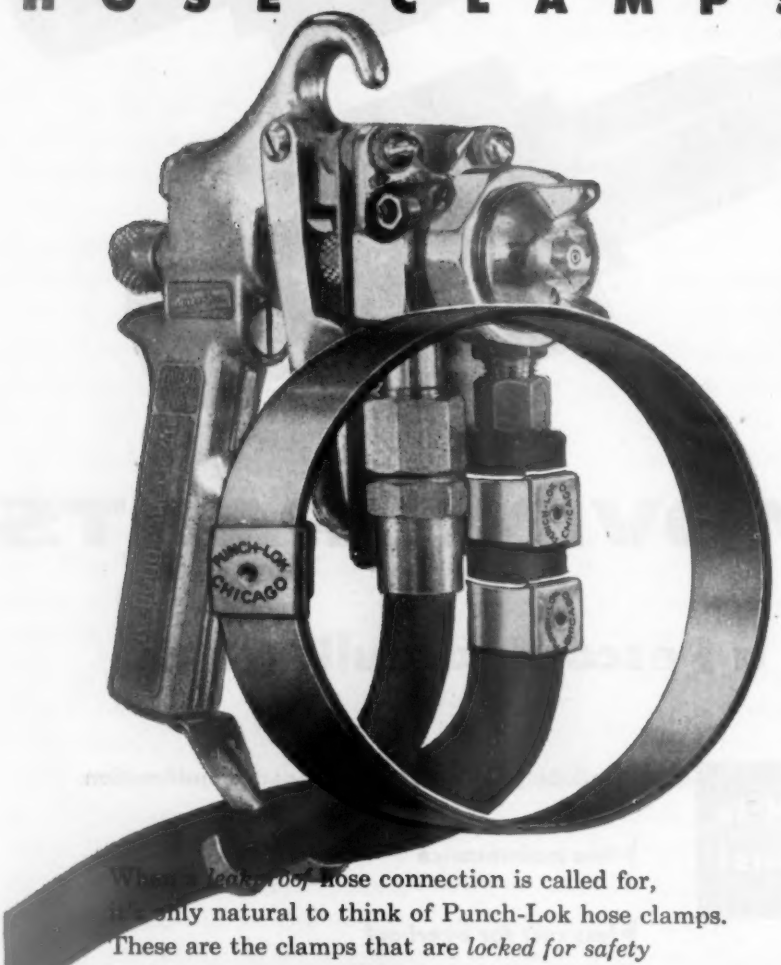
HOSE CLAMPS



Where a leakproof hose connection is called for, it's only natural to think of Punch-Lok hose clamps. These are the clamps that are *locked for safety* . . . locked to prevent slippage.

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See Your Near-by PUNCH-LOK Distributor

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PUNCH-LOK Company

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24th Manufacturers-Distributors Night Draws 650 In Washington

More than 650 purchasing agents, manufacturers, sales managers, engineers and other business executives visited the Spanish Ballroom of the Olympic Hotel in Seattle for the 24th Annual Manufacturers and Distributors Night meeting of the Purchasing Agents Association of Washington. M. C. Michener, purchasing agent, Cragin & Co., and president of the association, presided, while George S. Drury, purchasing agent and traffic manager, Northwest Lead Co., and past president of the association, acted as toastmaster. There were no formal speakers.

Honored guests at the head table included: Allen Pomeroy, mayor of Seattle; Harold Tollefson, mayor of Tacoma; Louis H. Unzelman, mayor of Everett; Donald H. Yates, president, Seattle Chamber of Commerce; Myron C. Law, director, Association of Washington Industries; Chesley Brown, acting president, Seattle Association of Credit Men; Winston D. Brown, president, Seattle Chapter, Associated General Contractors of America; James Wallace, president, Industrial Advertisers Council of Western Washington; Peter Lyman, president, Seattle Sales and Advertising Club; Kenneth H. Gill, president, Transportation Club of Seattle; C. D. Casey, president, Electric Club of Washington; Miss Leda Wilson, president, Seattle Chapter, National Office Managers Association; Harry Pike, acting supervisor of purchasing, State of Washington and Elroy Schultz, president, Inland Empire Group, Purchasing Agents Association of Washington.

Central Iowa Scores "Hits" With Oct., Nov. Meetings

The Purchasing Agents Association of Central Iowa followed up their outstanding October meeting with an equally interesting November program. In October, Fred Maytag, president of the Maytag Company, discussed some of the complex problems on taxes now taking place in Washington. Mr. Maytag is a member of the tax committee of the NAMA. In November, the association had a demonstration of the General Electric jet engine. This was followed by the dinner meeting with a discussion on "Purchasing and Sub-Contracting".

Lima, Ohio, Area Agents Seek To Form New P.A. Association

The purchasing agents of the key industries in Lima, Ohio, and the surrounding area met at the Barr Hotel for a dinner meeting in November for the purpose of organizing a purchasing agents association for the area. Temporary Chairman George L. Duke, Lima Westinghouse Electric Corporation, appointed the following committees to expedite the organization of the group: C. W. Babcock, Excello Corp., chairman of the Constitution and By-Laws Committee; L. E. Pennell, National Seal Co., chairman of Membership Committee; W. J. Behrens, Davidson Enamel Products, chairman of the Nominating Committee; and D. J. Kerr, Westinghouse Electric Corp., chairman of the Program and Publicity Committee.

Scout Movement Explained At Oregon Luncheon Meeting

Youth was the theme of a recent luncheon meeting of the Purchasing Agents Association of Oregon. George Alexander, assistant scout executive for the Portland area council, discussed the programs of the Boy Scouts, Girl Scouts, Camp Fire Girls and Red Shield Boys Club. A number of Boy Scouts were guests of the association at the meeting.

Dr. Gibson Addresses BC Ass'n on "Mental Illness" in Nov.

Dr. William Gibson, head of the Crease Clinic of Provincial Mental Hospital and head of Neurological Research, University of British Columbia, was the featured speaker at the November meeting of the Purchasing Agents Association of British Columbia. Dr. Gibson's subject, "Mental Illness—Its Implications", though presumably heavy material for after dinner speaking, proved extremely interesting and held the audience spellbound throughout its course. Dr. Gibson, a witty and accomplished speaker, delivered a well-planned talk aimed at the layman's level.

In October, the association was the guest of the new plant of British Ropes, Canada Ltd., in Vancouver. The visitors were treated to a fine luncheon and then toured the plant to see the manufacturing processes involved in making wire rope for the logging, fishing and construction industries.

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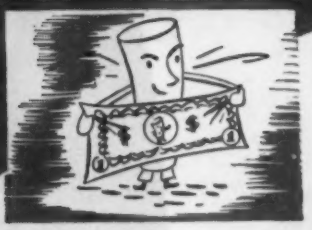

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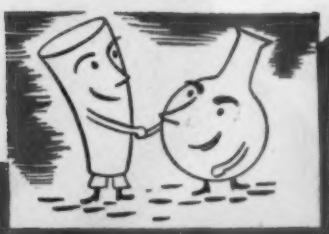

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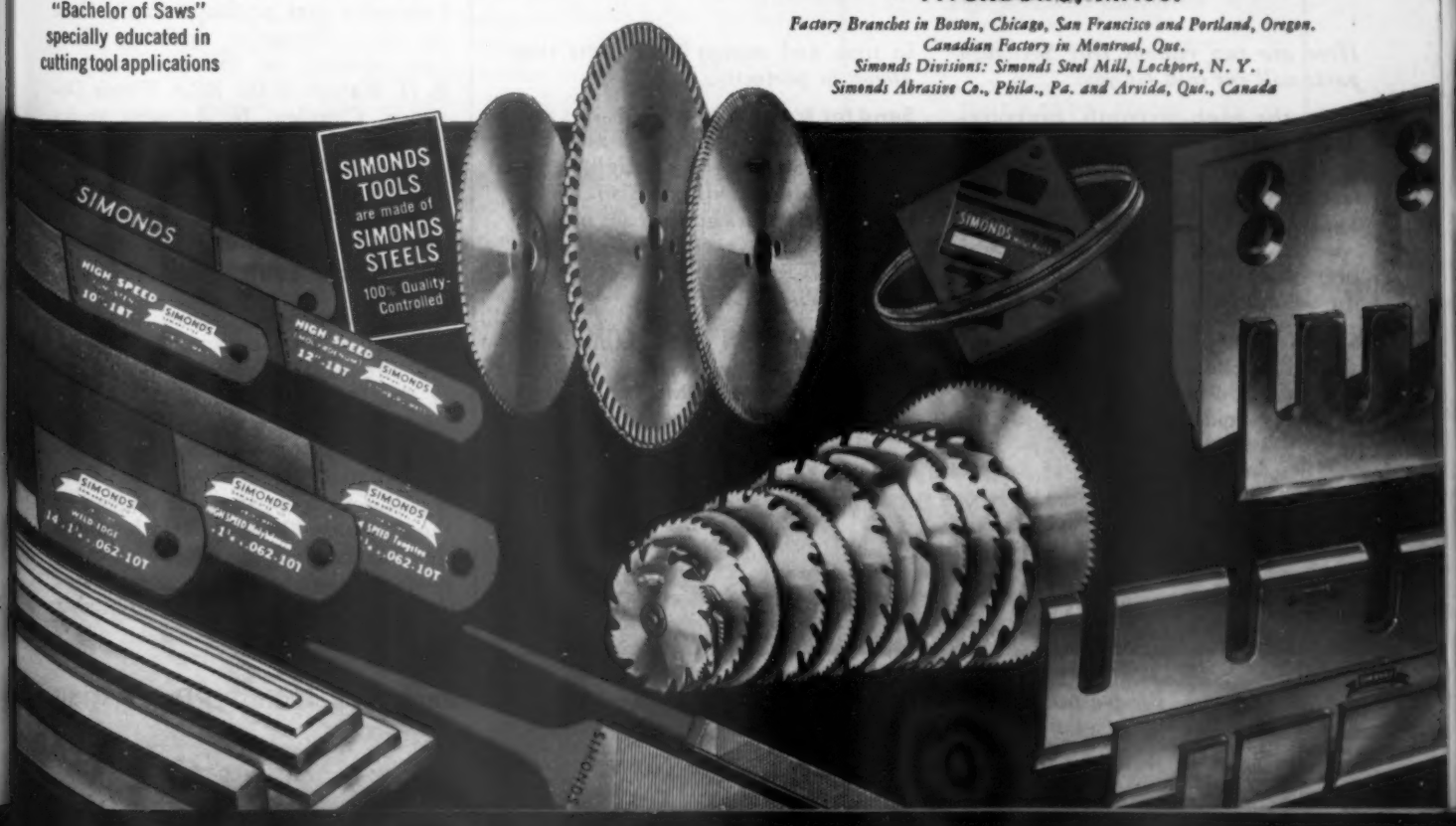
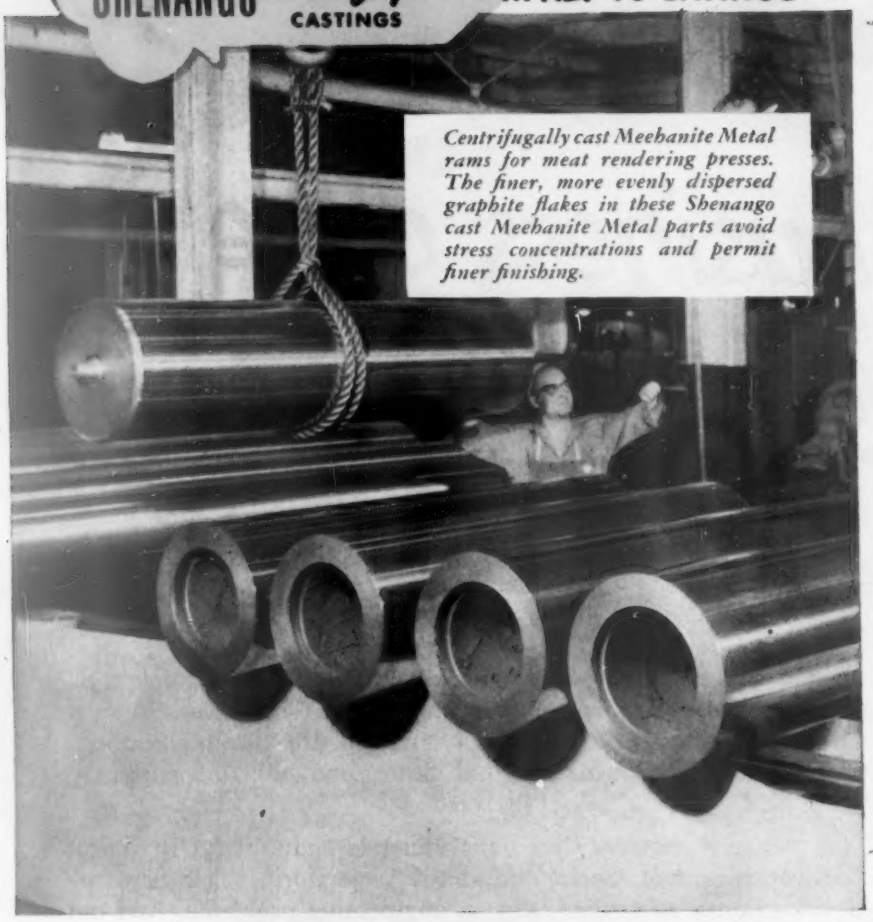


SHENANGO Centrifugal CASTINGS ... KEY TO SAVINGS



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District 2 VP Addresses Nov. Meeting Of Dallas Association

John W. Reives, purchasing agent, Southwestern Gas and Electric Company, Shreveport, La., and vice president of District 2, N.A.P.A., was the feature speaker at the November meeting of the Purchasing Agents Association of Dallas. His topic was "Don't Miss the Bus". The Annual Ladies Night Dinner Dance, to be held at the Lakewood Country Club, was announced for December by C. F. McAuliff, chairman of the affair. It was also announced that President E. F. Andrews would be the speaker at the January meeting.

Forum Discussion, E. F. Andrews Highlight New York Meeting

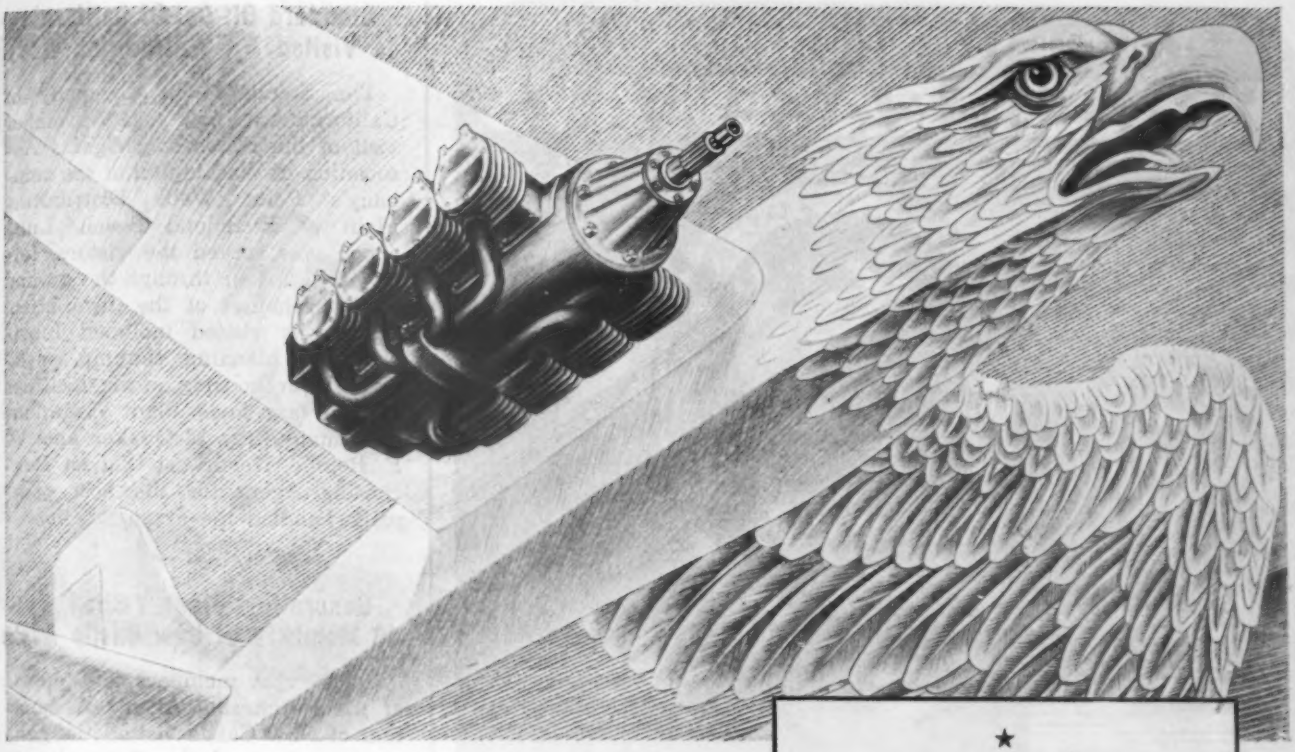
"Why, How and the Psychology of Expediting" was the subject of discussion at a Forum preceding the regular November meeting of the Purchasing Agents Association of New York. Frank P. Keeney, assistant director of purchasing-expediting, Curtiss Wright Corporation, Wright Aeronautical Division, Wood Ridge, N. J., was guest speaker with Harry House presiding during the question and answer period. President E. F. Andrews, who spoke on "Selling Purchasing", was the feature speaker at the dinner meeting.

Lancaster Group Hears Talk On Standards By S. Watson Of RCA

The Purchasing Agents Club of the Manufacturers Association of Lancaster met at the Arcadia Cafe for their November meeting. Feature speaker of the evening was S. H. Watson of the RCA Victor Division, Camden, N. J., who spoke on "Standards and Industrial Purchasing".

District Educational Chairman Addresses Central Mich. Ass'n

The luxurious, new Jackson Country Club, Jackson, Mich., was the site of the November meeting of the Purchasing Agents Association of Central Michigan. Harold Barry, chairman of the 4th District Educational Committee, N.A.P.A., was the main speaker. He addressed the group on "Human Relations and the Purchasing Agent". Two "commodity talks" by newer members of the association were also highlights of the evening's affair.



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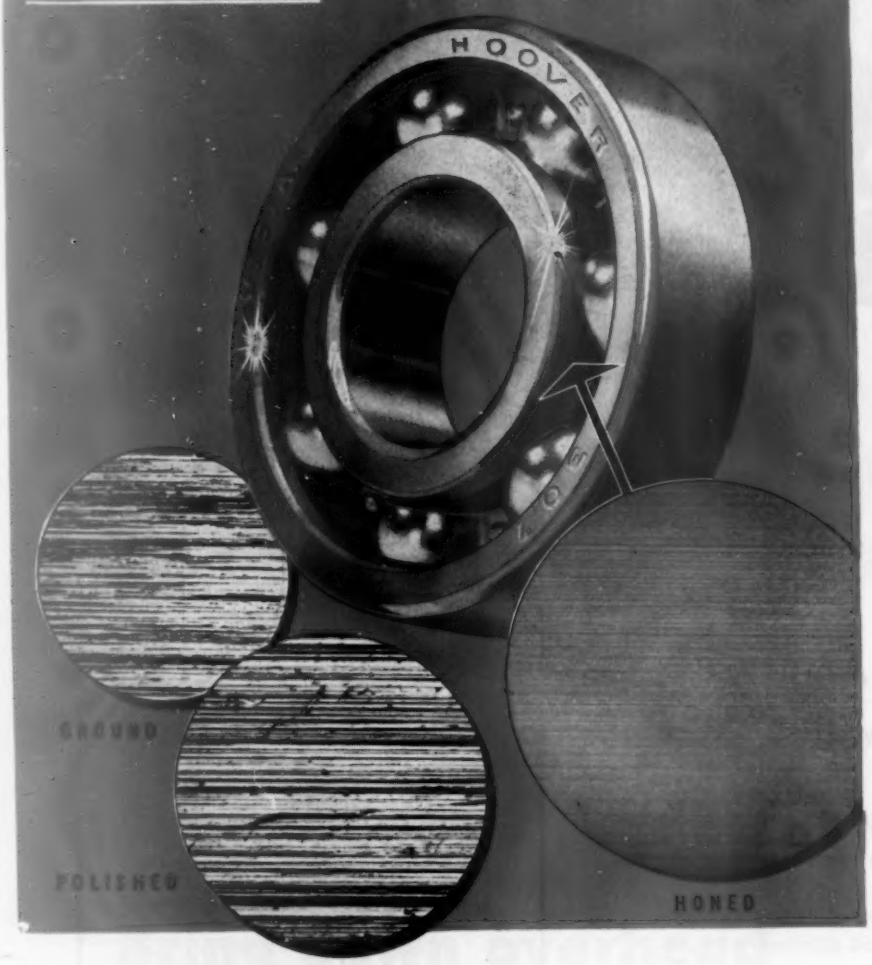

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Standard Oil Co. Of California Is Visited By Washington Ass'n

The Standard Oil Company of California was host to a November visit of the Purchasing Agents Association of Washington at the company's Point Wells Distributing Plant at Richmond Beach. Luncheon was served the vistors, followed by a tour through the ground and warehouses of the installation. Operations visited included lubricating oil blending, canning, packaging, warehousing, dock facilities and the tank farm. Plant Visitations Chairman Andy McQuaker and W. F. Retelle, Northwest District Purchasing Agent for the host company, handled the arrangements.

Generating Plant Visited By 48 Members Of New Castle Ass'n

Forty-eight members and guests of the Purchasing Agents Association of New Castle visited the generating plant of the Pennsylvania Power Company at West Pittsburgh for the association's November meeting. Dinner was served in the assembly room of the plant and was followed by a very short business meeting. Mr. P. G. Dingledy, vice president of the host company, was the speaker for the evening. He gave a detailed explanation of the facilities and equipment at the plant so that the members would understand the workings of the power plant on their tour. Several hours were spent in touring the plant following which the group reassembled for a question and answer period.

Executives' Night Celebrated By Denver Purchasing Agents

The Purchasing Agents Association of Denver celebrated their annual "Executives Night" during their November meeting at the Albany Hotel's Cathedral Room. Guest speaker for the evening was Dr. David B. Ficks, consulting psychologist and technical director of the Personnel Management Corporation, who addressed the 119 members and guests on "What Are Your Attitudes?" Dr. Ficks based his talk on the answers provided to 12 questions given to the audience. This "inventory" of the group attitude was used to illustrate how a knowledge of the attitudes might affect the policies and actions of both management and the purchasing staff itself.

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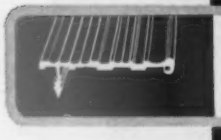

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Milwaukee's Industry Exhibit Called 'Outstanding Success'

The seventh "Products of Industry Exhibit" held by the Milwaukee Association of Purchasing Agents, recently, has been called the most successful one ever held by the group. There were 215 exhibits. Attendance was by invitation with more than 20,000 reported to have seen the equipment and supplies on display. The exhibits ranged from rivets to an envelope-making machine about 15 feet in length. It was estimated that about 75% of the exhibits were by Wisconsin manufacturers and suppliers and 25% from out of the state.

Those responsible for the show were: Carl W. Failmezger, president of the show; Emil H. Jones, general chairman, Alanson J. Kossel, publicity chairman; F. Pearce Bush, exhibits chairman; William G. Mett, information chairman; Loy M. Sanford, treasurer; Frederic G. Syburg, secretary and A. E. Altenhofen, reception committee chairman.

When the booths were first assigned, it was expected that 140 would be the limit. But the demand made it necessary to use more space in the building to hold the total of 215 booths.

RemRand Purchasing Records Demonstrated To Elmira Ass'n

An illustrated demonstration of Remington Rand purchasing records was held for 40 members of the Elmira Association of Purchasing Agents at a dinner meeting in the Mark Twain Hotel. Glenn Inman of the Lycoming-Spencer Division of Avco Corp., Williamsport, Pa., conducted the demonstration which was sponsored by the association's education committee.

Senator Purtell Speaks To Connecticut Ass'n In New Haven

U. S. Senator William A. Purtell was the featured speaker at a recent meeting of the Purchasing Agents Association of Connecticut held at the Hotel Taft in New Haven. His topic was "Challenge to America". An educational forum was held earlier in the day at which time the new film, "The Science of Making Brass", was shown. The film was shown under the sponsorship of the Chase Brass & Copper Co., who also provided specialists to answer questions.

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— Flat
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⧓ Odd contour

Low or high carbon, stainless, special alloy, Armco. You draw the shape—PAGE can draw the wire.

☐ Armature Banding Wire

Tinned stainless or carbon steel. In reels of 50 to 200 pounds. Stainless has high tensile strength, high resistance, low permeability.

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Tough, durable, workable. In the size and type for your work.

☐ Spring Wire

Any shape* . . . high carbon . . . hard drawn . . . high tensile . . . stainless . . . galvanized . . . tinned . . . bright.

*Cross-sectional areas up to .250" square; widths to 3/8"; width-to-thickness ratio not exceeding 6 to 1.

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Give us the specifications of the wire you need—or tell us details of job to be done.

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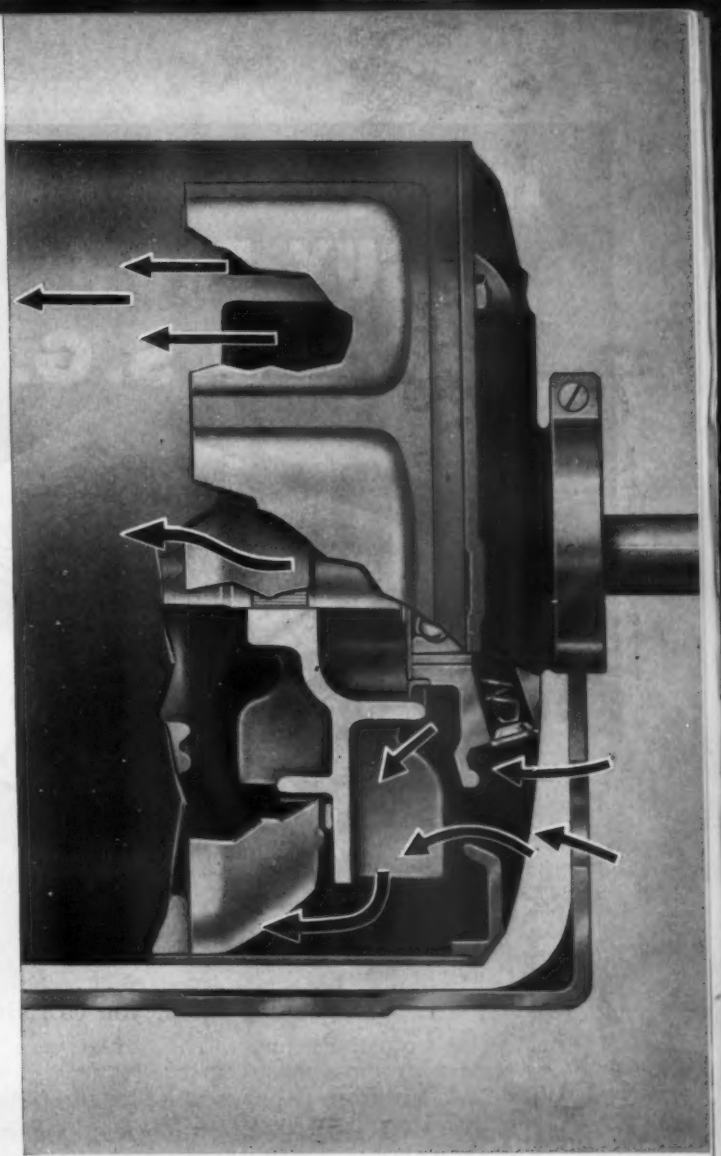

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Hans Westkott Talks To Reading Ass'n On Substitute Materials

Hans Westkott, assistant purchasing agent of the Berkshire Knitting Mills, told the Purchasing Agents Association of Reading that business costs can be cut by buying substitute materials at cheaper prices. After the talk, Russell Byers served as moderator for a forum on purchasing practices. Panel members were Samuel Smith, Samuel Henry and Leroy Groff.

Cleveland Hears Harry Winsor

The importance of public relations both to businessmen and individuals was stressed by Harry B. Winsor, administrative secretary at Western Reserve University, in his speech to the Purchasing Agents Association of Cleveland.

He was introduced at the meeting in the Hotel Carter by A. J. Mitchell, vice president and program chairman of the association.

Results Of Southwestern Conference Discussed At Tulsa

A program dealing with aspects of the Southwestern Purchasing Conference formed the basis for a recent meeting of the Purchasing Agents Association of Tulsa. L. E. Patten, manager of material and traffic, Carter Oil Co., spoke for the purchasing agents while G. A. Thompson, president of Bethlehem Supply Co., spoke for the sellers and H. M. Cosgrove, executive secretary of the association, explained how the conference was organized and carried out.

Eight New Members Greeted at November Meeting in Buffalo

Eight new members were greeted at the November meeting of the Purchasing Agents Association of Buffalo. They were: John B. Addington, Fisher-Price Toys, Inc.; John W. Buno, Socony Vacuum Oil Co.; William F. Burk, Jr., The Carborundum Co.; Robert C. Estes, Hewitt-Robins, Inc.; Thaddeus V. Lysiak, J. M. Cranz Co.; Claude W. Mottinger, Hewitt-Robins, Inc.; Daniel A. Roblin, Jr., Buffalo Housewrecking & Salvage Co., Inc.; and James W. Williams, Stanley Aviation Corp. It was announced at the meeting that Joe Silvernail had been appointed vice chairman of the 8th District Educational Committee.

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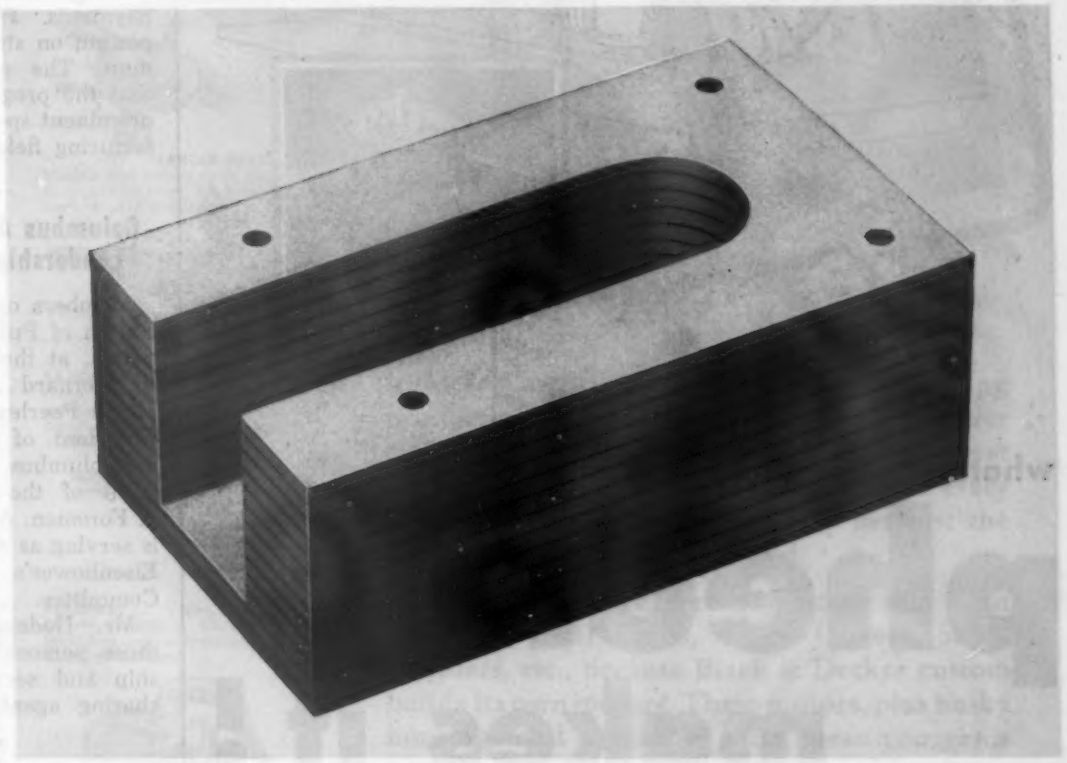
Want to make something of it?

Make it into many products that require physical and electrical qualities that are equal to, or better than, that of the equivalent thickness of homogeneous fibre. The arc resistance at the adhesive line is equal to that of the fibre itself. The adhesive is unaffected by abrupt changes in relative humidity. It gives built-up fibre greater stability . . . resistance to distortion caused by atmospheric conditions. Edge splitting tests have proven the adhesive stronger than the fibre.



Make it from 45″ x 56″ sheets in any thickness desired. The thickness of individual plies can be varied to suit your particular requirements.

Make sure you get complete information on this versatile new material. Call your Taylor engineer . . . he will be glad to work with you . . . see where it can fit into your products. Let him go over your requirements for laminated plastics also. He may be able to suggest ways that *Taylor Phenol, Melamine and Silicone Laminated Plastics* can do a better job . . . lower your costs.

Let us make it for you in our Fabricated Parts Division. We are equipped to turn out parts to your exact specifications . . . at the right price . . . with deliveries to match your production schedules.

Taylor Fibre Co., Norristown, Pennsylvania—La Verne, California

TAYLOR
Laminated Plastics
Vulcanized Fibre

which SCREW is best for this job?

whatever type and size you select

pheoll makes it!

OVER 10,000 standard sizes, types, head styles and finishes are offered in Pheoll's complete line of screws, bolts and nuts. You can benefit through simplified ordering and stocking . . . centralized purchasing. Call Pheoll on your next order.

PHEOLL

PHEOLL MANUFACTURING CO.
5700 ROOSEVELT ROAD, CHICAGO 50, ILLINOIS

SCREWS • NUTS • BOLTS • SPECIAL COLD HEADED PRODUCTS

Public Utility Group to Hold Feb. Conference in Baltimore

The Mid-Winter Conference of the Public Utility Buyers' Group, N.A.P.A., will take place at the Lord Baltimore Hotel, Baltimore, Md., on Monday and Tuesday, February 15 and 16. According to Chairman W. H. Jones, Philadelphia Electric Company, the program will feature addresses by N.A.P.A. President E. F. Andrews and G. A. Renard, executive secretary-treasurer of the N.A.P.A. In addition, there will be forecasts of the economic situation from leaders in the purchasing and editorial fields as well as panel discussions by buyers and manufacturers on such points as pricing, escalation and progressive payments. Plans call for a symposium on steel, copper and aluminum. The group also announced that the program will have several prominent speakers from the manufacturing field.

Columbus Ass'n Hears Talk On Leadership Qualities In Nov.

Members of the Columbus Association of Purchasing Agents heard a talk, at their November meeting, by Bernard A. Hodapp, president of the Peerless Saw Company, past president of the Foremen's Club of Columbus and four-time president of the National Association of Foremen. At present, Mr. Hodapp is serving as a member of President Eisenhower's National Economic Committee.

Mr. Hodapp's talk dealt with those personal qualities of leadership and service which the purchasing agents should develop.

Chicago Woman Agents Hear Talk By F. R. Burns

F. R. Burns, assistant sales manager of Central Steel and Wire Company, was guest speaker at a recent meeting of the women's division of the Chicago Purchasing Agents Association. His topic was "Selling is Everybody's Business".

T. A. Corcoran At Alabama Meet

The Purchasing Agents Association of Alabama heard an address by T. A. Corcoran, director of purchases, The Courier-Journal and The Louisville Times, Louisville, Ky., at a recent meeting. Mr. Corcoran, a former president of N.A.P.A., spoke on "Purchasing Horizons".

Black & Decker
Cases for Comment

MAINTENANCE
(Case History 8168)

Removing rust fast with wire brush and versatile B&D Portable Grinder

CONSTRUCTION
(Case History 10634)

1616 houses built at 2-a-day rate... thanks to B&D Heavy-Duty Saws

PRODUCTION
(Case History 10691)

20% more production
20% faster...it's a
Black & Decker Drill

Photo shows drilling of 10 gauge steel for Victor Furnace. Manufacturer reports use of B&D Drill resulted in 20% speed up, 20% production increase. Drills standing up very well after 8–10 years use...8 hrs. a day...5½ days a week.

Jack-Sure shows long, trouble-free service

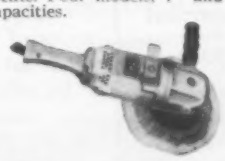
SMALL DRILLS. Typified by "handful of power" ¼" Heavy-Duty Holgun.* Ideal production tool. Exceptional in "close-corner" drilling.

LARGER DRILLS . . . Models and speeds to fit any job in capacities from ¼" to 1¼" in steel, double in hardwood.

SCREW DRIVERS . . . Drive anything from delicate screws to large nuts and bolts. Many models, positive and adjustable clutches.

SANDERS . . . Drive abrasive discs, wire cup brushes, saucer grinding wheels, other attachments. Four models, 7" and 9" capacities.

BENCH GRINDERS . . . Three models, 6"—10" wheel diams., ¼ to 1 H.P., for sharpening, grinding, wire brushing, buffing.



POLISHERS . . . Clean, polish, seal in *one* operation. Three models including unit with *exclusive* automatic polish feed.

HAMMERS . . . Drive star drills, bull points, etc., in masonry, other materials. Four models, ½" to 2" hole-capacity in concrete.

PORTO-SHEARS* . . . For fast, accurate cutting of ferrous and nonferrous sheet metal. Two models, 12 & 16 gauge capacities in steel.

VALVE SEAT GRINDERS . . . Famous "Vibro-Centric"* action puts a mirror finish on internal combustion engine valve seats in seconds.

PORTABLE GRINDERS . . . Bring the tool to heavy, bulky, hard-to-move work. Perfectly balanced. 3", 5" and 6" wheel diams.

VALVE REFACERS . . . Speedily grind factory-accurate angle on valve faces. Also grind valve stems, tappets and rocker arms for exact clearance.

FACTORY SERVICE . . . A B&D *extra!* Nationwide company-operated branches within 24 hours of *any* customer provide fast, accurate service at reasonable cost!

Industry reports prove . . . for increasing production . . . speedier construction . . . easier maintenance . . . *at lower cost* . . . it's hard to beat Black & Decker Power. They find that in every B&D Portable Electric Tool they get just the right power to do the job.

And they can be sure of getting this right power in B&D Drills, Screw Drivers, Saws, Grinders, etc., because Black & Decker custom builds its own motors. These motors, plus husky housings and precision parts, mean you get a tool that's easy to work with and hard to hurt. In every B&D Tool you have a real time-, trouble-, money-, and manpower-saver.

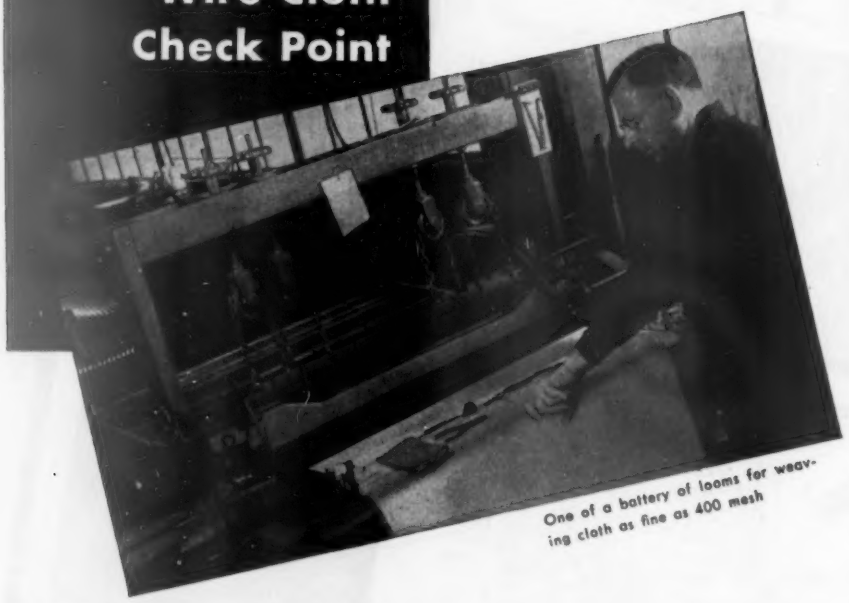
Want more information? Then ask around your industry . . . your own shop. Call your B&D Distributor for demonstration. And write for your copy of the complete *1954* B&D catalog. Address: THE BLACK & DECKER MFG. CO., 607 Pennsylvania Ave., Towson 4, Maryland.

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker
PORTABLE ELECTRIC TOOLS

* Trade Mark Reg. U. S. Pat. Off.

An Important Wire Cloth Check Point



One of a battery of looms for weaving cloth as fine as 400 mesh

Weaving Precision

Our skilled workmen and precision looms combine to make precision wire cloth that meets the most rigid specifications. All shute wires are parallel and all warp wires are parallel as they must be, to assure a uniformly woven cloth with no defects. One or two open spots in a wire cloth could completely spoil the most painstaking screening operation.

In addition to its uniformity and freedom from imperfections, Newark Wire Cloth is noted for accurate mesh counts. Available in all the commercially used metals, Newark Wire Cloth is woven in sizes ranging from 4 inches (space cloth) down to 400 mesh.

We maintain a large stock of the commonly used metals and sizes, and are in a position to make prompt shipments. Let us quote on your requirements. When writing, please give us details on your process.

Send for our New Catalog E.

NEWARK for ACCURACY

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Gift Problem, Electronics Top Twin City's November Program

A Pre-Meeting Huddle discussing "The Gift Problem" as related to the Purchasing Agent provided a lively sendoff for the November meeting of the Twin City Association of Purchasing Agents. Representatives of a remembrance advertising firm were present to add their thoughts on the matter.

Feature speaker of the evening was Willius K. Drake of Engineering Research Associates Division of Remington Rand Inc. whose topic was "Electronics and the Purchasing Agent".

Maintenance Show January 25-28

Three million dollars in products and equipment will be featured at the fifth Plant Maintenance & Engineering Show to be held at the International Amphitheatre, Chicago, Jan. 25-28, according to Clapp & Poliak, Inc., producers of the exposition.

The show, which has risen in four years to a place among the five largest annual industrial expositions in the country, will have 400 exhibiting companies who will occupy 100,000 square feet of display space. Twenty thousand visitors from all parts of the country and many foreign nations are expected to attend.

In addition to the show, a three-day conference will be conducted at the Hotel Conrad Hilton. Fifty-seven nationally known authorities, drawn from every type of industry, will lead discussions. The conference is the largest of its kind. More than 2,000 engineers and maintenance men are expected to participate.

Catalogs On Various Files

Heller Brothers Co., Newcomerstown, Ohio, has recently released several new catalogs on their products. Two of these, "Vixen Milled Curved-Tooth Files" and "American Pattern Nucut Files", indicate the variety of files the company produces.

The 12-page "Vixen" booklet gives information on sizes, cuts, teeth per inch, shipping weights and packaging of every type of milled curved-tooth file.

The "Nucut" booklet devotes its 16 pages to every type of American pattern file and rasp including special purpose files. It also has information on care and use as well as a complete glossary of file words.

kitchen worksavers *with a built-in shine!*

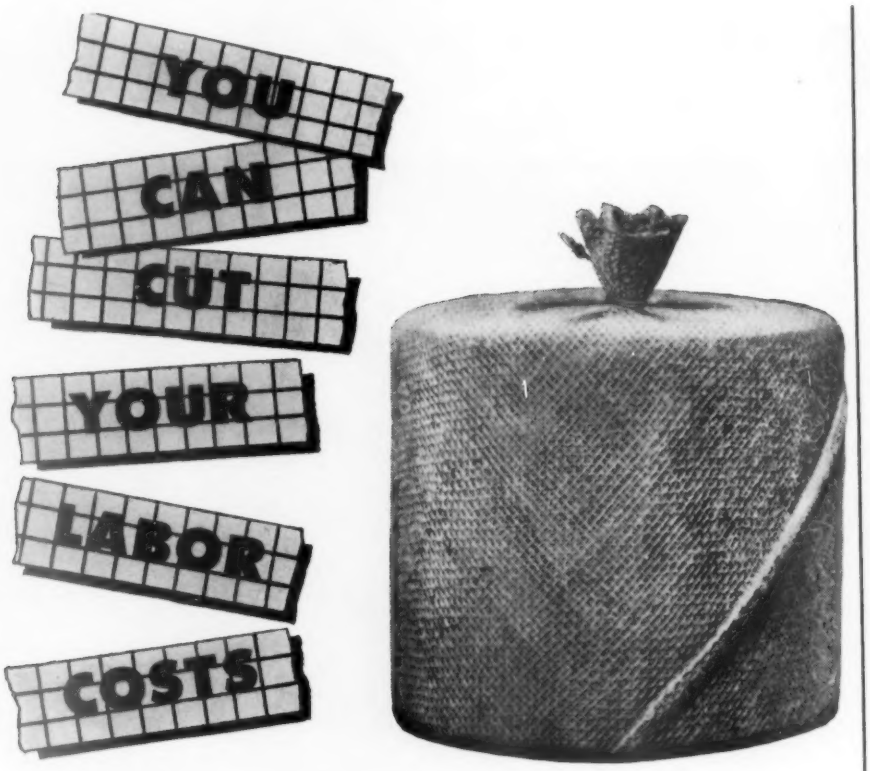
fabricated from

SUPERIOR Type 430 STAINLESS

strip steel

Kitchen tools and utensils serve best when they're strong and stainless—and are *fabricated* best when Superior Stainless Strip Steel is used. Our stainless strip is something special . . . produced by specialists . . . extra-easy to handle by your methods, and supplied in *your* tempers, widths and finishes.

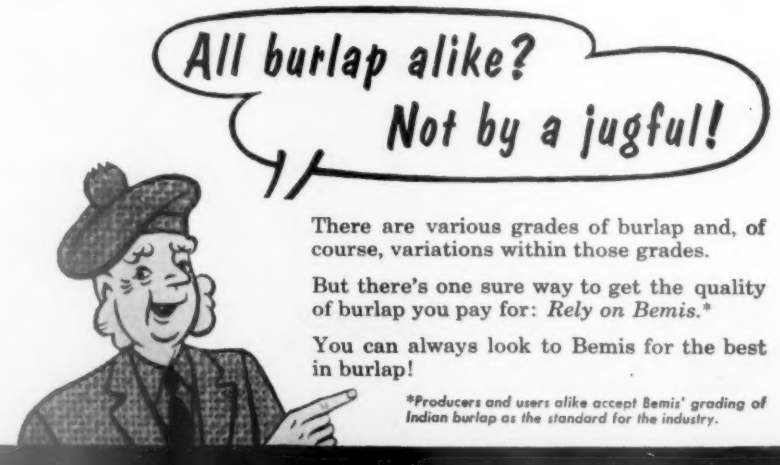
Superior Steel
CORPORATION
CARNEGIE, PENNSYLVANIA



Use Bemis Tite-Fit Tubing!

Bemis Tite-Fit Tubing . . . the spiral-sewn burlap tubing with the 2-way stretch . . . is the fastest, easiest, most economical wrapping for rolls or bales of goods. Ask the Bemis Man to demonstrate.

Whatever your needs, we can furnish mixed carloads of burlap piece goods in a wide assortment of widths and weights.



There are various grades of burlap and, of course, variations within those grades.

But there's one sure way to get the quality of burlap you pay for: *Rely on Bemis.**

You can always look to Bemis for the best in burlap!

**Producers and users alike accept Bemis' grading of Indian burlap as the standard for the industry.*

Bemis BEMIS BRO BAG COMPANY

General Offices
St. Louis 2, Mo.

Buyer Resistance Poses New Problems in Sales, Production Conference Board Survey Shows

There is more buyer resistance today than there has been for many years, according to the findings of a survey of 155 manufacturing companies recently completed by the National Industrial Conference Board.

Not only is there more competition for the consumer's dollar, according to cooperating companies, but price competition is becoming prevalent.

The loss of defense business has freed productive capacity in some industries and has greatly intensified the search for markets. In the face of adequate supplies, customers are becoming more selective and are offering more resistance. Conference Board cooperators are of the opinion that customers are not only price conscious, but are demanding better service and better delivery.

Rebuilding the Sales Force

To meet the challenge of this emerging market, a substantial portion of the companies cooperating in the NICB survey are intensifying their efforts to recruit competent salesmen and to train existing salesmen on how to do a better job, while a third of the reporting companies will put more salesmen in the field.

The Board found, however, companies are experiencing difficulty in recruiting salesmen and report that good men are scarce.

NICB found those companies that are experiencing price competition generally hope to overcome it through lower production costs. Some believe that maintaining or improving quality against a background of rising costs is probably their most difficult problem at the present time. Few companies except to be able to reduce distribution costs, and many expect that such costs will necessarily increase as sales efforts are intensified.

Some companies are of the opinion that new products and new uses for old products are the solutions to their sales troubles. Generally, The Conference Board found, cooperating manufacturers are considering the introduction of new products that are additions to their product line rather than divergent products.

Developing sufficient advertising support for these new products, integrating them into existing lines, and getting adequate distribution are corollary problems that are being given attention by these companies.

"*Now with a G Bond wheel we can go completely around a 16-inch face mill,*" writes the tool supervisor of a New Jersey plant. "Previously, due to wheel wear we had to index this type of cutter at four different positions. Now, on a finish cut, we can go completely around, and the cutter runs absolutely true within .0005 inches. These new G Bond wheels have very good, cool cutting action, don't break down or leave jagged edges . . . We'll be using plenty of them on our tool room jobs."

New G BOND sets new records in tool room grinding

Here's Proof... Users praise the many "TOUCH of GOLD" *advantages in Norton pace-setting wheels*

Norton G Bond wheels have sure started something! In tool and cutter grinding, as in many other forms of precision and semi-precision grinding, they're giving users an entirely new slant on how efficient, long-lasting and profitable wheels can be.

What Users Say About New G Bond Wheels

"Good finish, longer wheel life."

"Heavier feeds without burn."

"Run absolutely true."

"No breakdown—no jagged edges."

"Cut freely, hold shape with no burning."

"They show how a real wheel will cut."

G Bond Alundum Wheels In Your Own Tool Room*

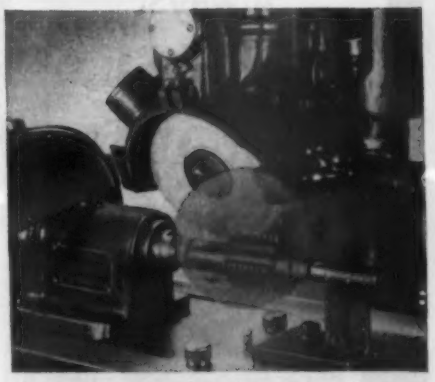
will take heavier cuts in expensive, heat-sensitive steels without drawing temper. They'll reduce tool spoilage, give you closer tolerances and smoother finishes than you ever got before — with fewer wheel changes and machine adjustments . . . Those are the value-adding, money-saving "Touch of Gold" advantages that make G Bond wheels outperform any others you ever used.

Your Norton Distributor

can recommend the right G Bond wheels for your jobs. Contact him or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities, listed under "Grinding Wheels" in your classified phone directory. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass. W-1532

NORTON
ABRASIVES
Making better products... to make other products better

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries



"*Better cut and less burn* than previous Norton or other make wheels. We're re-ordering 250 G Bond wheels," was the comment from this Ohio tool company.

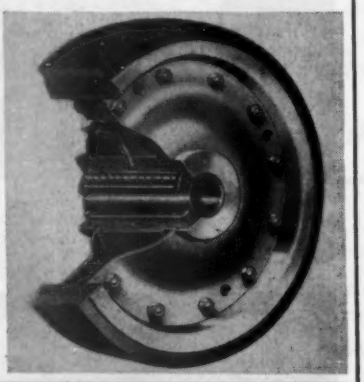
"*We're using heavier feeds* with G Bond wheels — and getting faster sharpening."

DARNELL
CASTERS & WHEELS

Specify Darnell

• Save Money, Floors, Equipment and Time by using DARNELL Casters and Wheels . . . Always dependable,

Always
SWIVEL
and ROLL



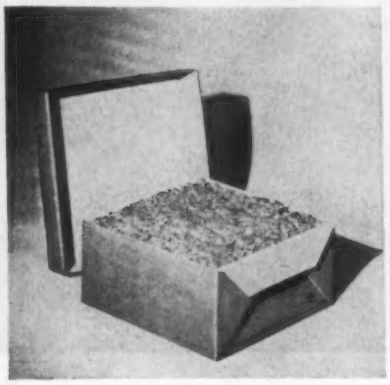
Free Manual

DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

Corrugated Box Carries Greasy Or Moist Products Safely

Economy in the packaging of meats and other extremely moist products has been made possible by the new "Never Leak" box developed by Hinde & Dauch, Sandusky, Ohio.

The new container, which is capable of holding liquids for weeks without any apparent seepage, is of one-piece, die-cut corrugated construction. It can be supplied with



the inside glassine-laminated, covered with a special coating, or a combination of both. Effective resistance to both grease and moisture are afforded by the patented container.

Special self-locking ends of the body and cover allow easy assembly without the use of tape, stitches or glue. Convenient handles formed by the self-locking ends make the body of the box adaptable as a tote tray if desired.

Stacking strength has been found to be excellent. Cover of the box can be furnished with or without a device for locking the cover to the body.

Pressed Metal Data

An illustrated transcript of the Pressed Metal Institute's fourth annual spring technical meeting is now ready. Among the subjects covered are: Press Guarding; Designing Safety Into Dies; The Right Press for the Right Job; Drilling, Tapping and Counterboring in the Stamping Plant; Work Simplification; Die Breakage and How to Minimize It. Copies are $5 each from Pressed Metal Institute, 2860 E. 130th St., Cleveland 20, O.

Mercury Market Data Available In New Monthly Bulletin

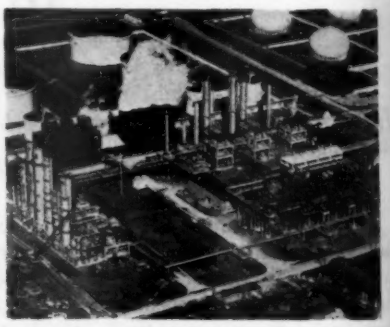
Mercury users can get up-to-the-minute information on the current and future possible course of the market from a new publication issued monthly. Called the "Mercury News Bulletin," it is published by Bethlehem Apparatus Company, Inc., 831 Front St., Hellertown, Pa. The bulletin is described as completely non-commercial, designed to act solely as a source of information for anyone interested in the commodity.

The current issue indicates that mercury is at its lowest price since the outbreak of the Korean War, but that resumption of even normal demand could bring about a sharp price increase and scarcity.

Sun's New Petrochemical Plant Now On Stream

An important new supply source for petrochemicals has been put on stream by Sun Oil Company. The new plant, an addition to Sun's Marcus Hook, Pa. refinery, was put in full operation during December.

The $15 million plant is designed to produce as much as 19 million gallons of benzene per year. It can make the same quantity of toluene and 15 million gallons of mixed xylenes.



Production of these basic aromatic chemicals at this one plant will equal one-fourth of their total production by the entire coal tar industry in 1941.

Speaking to a group of press representatives at the plant, C. H. Thayer, vice president in charge of manufacturing, said that it could be used for other purposes should economic conditions cause any great change in demand for aromatics. Dr. J. Bennett Hill, director of research, pointed out that the new facility is the only one of any size making aromatics in the northeastern area of the country. This, he said, gives it a strategic geographical position to supply industry concentrated there.

See Classified Section Page 306

For quick answers to special cable problems

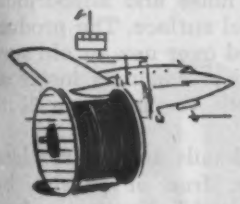
call "ROME 3000"

Generally, today's wire and cable requirements can be supplied right out of stock by Rome Cable distributors near you, or from a Rome Cable warehouse.

But, when you run into a problem that involves something special or when you need technical information quickly, simply pick up your telephone and call our nearest sales office or "Rome 3000." You will get prompt, helpful information directly from our key people.

Here are two ways in which buyers have been frequently helped by "calling Rome Cable."

Rush shipments of emergency orders by any carrier



Rome Cable is located at a point that makes possible fast rail, motor or air shipments. Its people are trained to act quickly in emergencies. In many instances, the seemingly impossible has been done to meet delivery schedules . . . often on the same day as the call.

Technical service

Time and again, a call to our nearest sales office or "Rome 3000" has produced engineering or product information which resulted in the solution of unusual wiring requirements . . . saving many dollars in lost time.

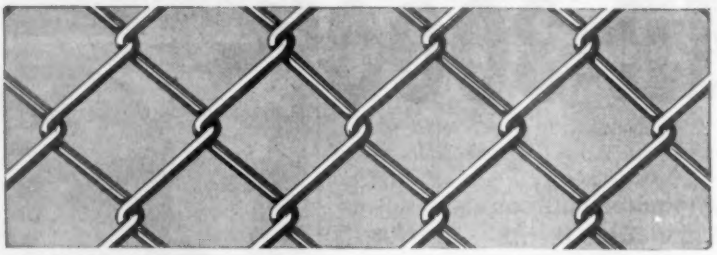
Calling "Rome 3000," either sales office or the factory, symbolizes a personalized service . . . a service resulting from direct and intimate contact between buyer and seller.

It Costs Less to Buy the Best

ROME CABLE
Corporation
ROME • NEW YORK
and
TORRANCE • CALIFORNIA

PAGE FENCE - Since 1883

• AMERICA'S FIRST WIRE FENCE •



EVERY STEP IS QUALITY CONTROLLED— FROM RAW METAL TO THE ERECTED FENCE

• Page *Chain Link* Fence, pioneered by PAGE and produced only by PAGE, offers reliable protection against hazards which threaten both property and persons.

YOUR CHOICE OF THREE SUPERIOR METALS is assurance that your fence will best meet your needs. Choose heavily-galvanized Copper Bearing Steel, or long-lasting Stainless Steel, or corrosion-resisting Aluminum. Interlocking wires are woven to form a strong, uniformly square mesh.

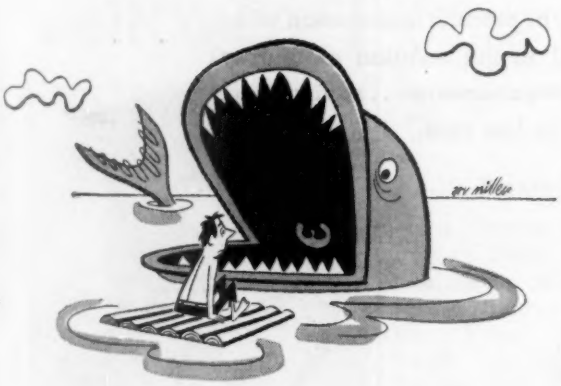
EIGHT BASIC STYLES, varied by choice of metals, wire gauges, heights, types of gates, posts and post tops, and top rails. Tension and fabric bands not removable from outside. Gate frames welded at joints.

IT'S TIME TO THINK, AND ACT. Page Fence is expertly erected by technically trained firms conveniently located throughout the country. For illustrated PAGE data and name of nearest firm . . .

Write to PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Los Angeles, Philadelphia, New York or San Francisco.

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

Got a moving Problem?



Hold on!

Call AMERICAN RED BALL MOVING SPECIALISTS *first* for home or office transit! Everything's *safe*, yet cost is LOWER THAN MOST! Consult the yellow pages of your 'phone directory for your nearest AMERICAN RED BALL agent! FREE PERSONALIZED ESTIMATE!

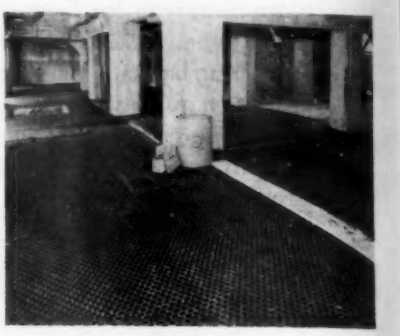
Rely on **AMERICAN RED BALL**

TRANSIT COMPANY INC.

PIONEER NATION-WIDE MOVERS

Steel Mesh, Special Filler Form New Heavy-Duty Flooring

A heavy-duty flooring, called "Steel-Rock", is announced by United Laboratories, Inc., Cleveland, Ohio. The flooring combines a heavy steel mesh and a special filler as a complete unit for surfacing floors subjected to abuse. "Steel-Rock" is claimed to withstand impact as well as heavy rolling traffic and remain maintenance-free for many years.



Floors can be applied over new or old surfaces.

The resilient filler used in the metal grid, compacts to meet the level of the steel ribs thereby permitting the wheels to ride on steel without the noise and slipperiness of a solid steel surface. The product can be applied over new or old surfaces of wood or concrete, inside or out, at a depth varying from 3/8 to 1 inch.

Complete details and instructions are available, free of charge, by writing to United Laboratories, Inc., 16801 Euclid Ave., Cleveland, Ohio.

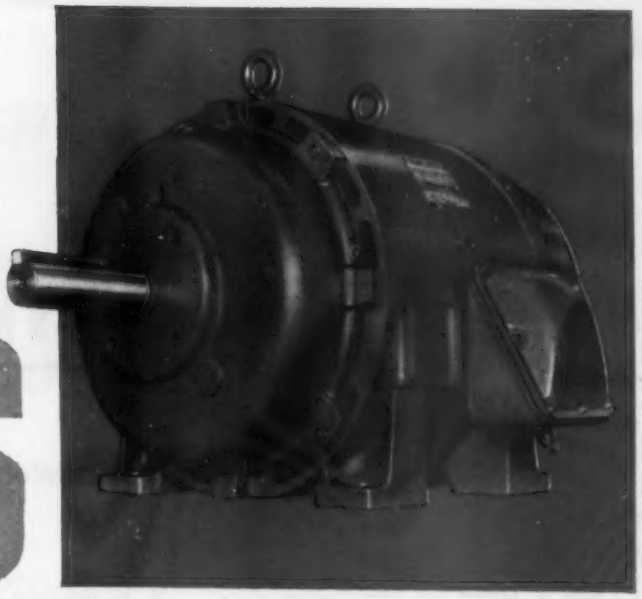
1 1 1

Standards Without Tears

Standardization is a much more fascinating subject than its mouthful of syllables would indicate. To prove it, American Standards Association has issued an informative and amusing booklet entitled "Through History With Standards." Sub-title is, "An Illustrated Text Book for Young and Old." How standards developed, grew and became so important is told accurately, but in light vein. Richly humorous cartoons more or less help prove the point emphasized by ASA: "Through standardization, inconvenience, useless confusion and sometimes tragedy have been stopped or avoided—as you will see in this book."

Copies are available from American Standards Association, 70 East 45th St., New York 17, N. Y.

"ALL MOTORS ARE NOT ALIKE!"



FOR RUGGED SERVICE, Reliance Motors are built better to last longer. These *Precision-Built* Motors combine maximum strength with shock-resistant frame and bearing-bracket construction. Write for Bulletin B-2101.

RELIANCE *Precision-Built* MOTORS

B-1470

RELIANCE ELECTRIC AND ENGINEERING CO.

1056 Ivanhoe Road, Cleveland 10, Ohio • *Sales Representatives in Principal Cities*

Personalities IN THE NEWS

Ray A. Hulce has been named Purchasing Agent of the recently formed Special Product Division of the Ford

Ray A. Hulce

Motor Company, Dearborn, Mich. Mr. Hulce was formerly administrative assistant to the general manager of Special Product Operations, forerunner of the new division. He joined Ford in July, 1948, and later served as assistant to the purchasing agent of the Lincoln-Mercury Division.

David V. Sprunt, former civil defense coordinator for Pima County, Ariz., was appointed County Purchasing Agent by the board of supervisors recently.

Homer Shaw has been named Purchasing Agent for the Parma Water Lifter Company, Parma, Idaho. Mr. Shaw previously had been associated with the Bradley Mining Company.

David L. Galen was honored recently at two functions marking his retirement as Vice President-Purchasing for Crown Zellerbach Corporation, San Francisco, Calif. He was presented with a 45-year service pin by Executive Vice President Harold Zellerbach at a company luncheon and later was feted at company headquarters by employees of the company.

W. H. Ruskaup Jr., Assistant General Purchasing Agent of the New York Central System, was guest speaker at a recent meeting of the Hudson Valley Chapter, Society for the Advancement of Management.

Mr. Ruskaup spoke on "The Functions of a Purchasing Agent in an Organization".

The appointment of **H. P. Macco** as General Purchasing Agent for Twain Tool and Manufacturing Co., Evanston, Ill., was announced recently.

Allen D. Foote has been named works Purchasing Agent for the West Allis Works, Allis-Chalmers Manufacturing

Allen D. Foote

Co., Milwaukee, Wis. Mr. Foote joined Allis-Chalmers in 1936 and became a member of the purchasing department in 1942.

Other appointments in the West Allis Works' purchasing department are: S. C. Bielawski, tractor purchasing agent; G. A. Justman, supervisor of the expediting section. In addition, J. L. Doyle is now in charge of the expediting section at the Hawley Works.

Armour & Co., Chicago, has named **John M. Hoerner** to the new post of Director of Purchases and Sales of the firm's chemical division.

Horace B. Ferguson has been named Director of Purchases for Aeroquip Corporation, Jackson, Mich. Mr. Fer-

Horace B. Ferguson

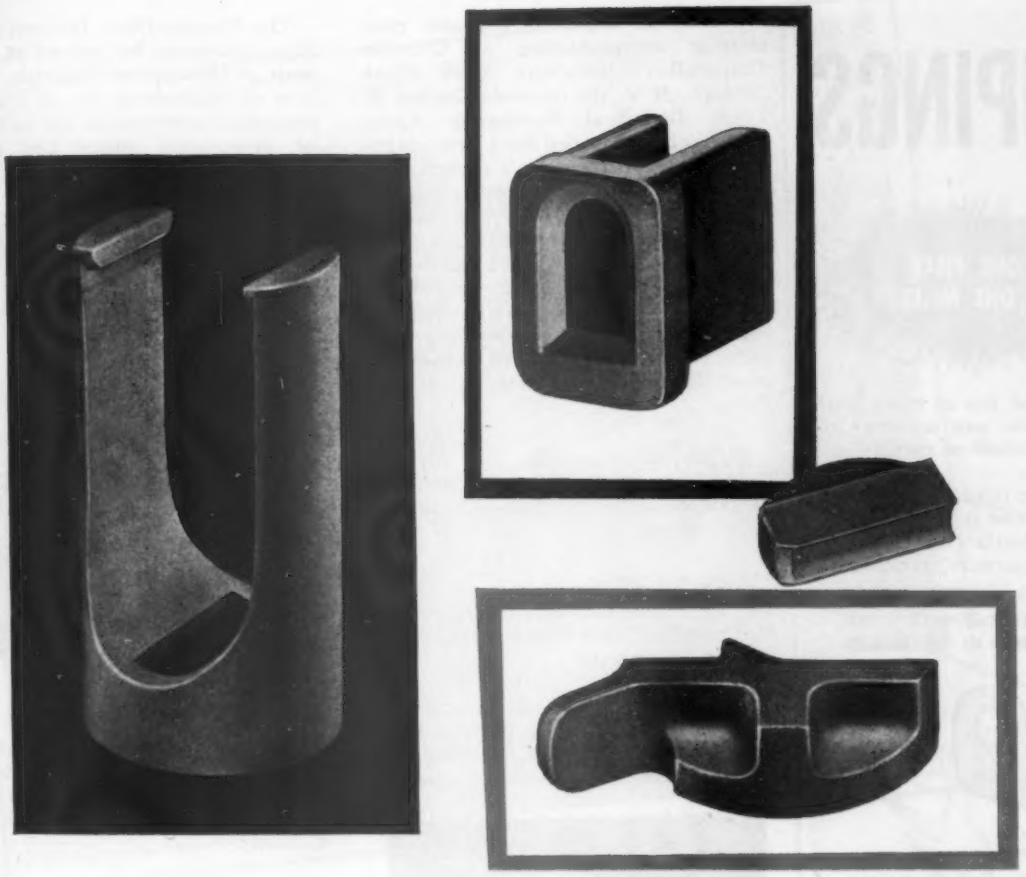
guson joined the organization last September when he left the Free Sewing Machine Co. of Rockford, Ill., where he was Director of Purchases.

The Marathon Electric Mfg. Corp., Wausau, Wis., has appointed **Harold W. Kumerow** as Director of Purchases. Mr. Kumerow joined Marathon in 1947 and was appointed material control and accounting supervisor in 1949.

Robert W. Koch, who served as a special assistant to Secretary of Defense Charles Wilson, has returned to Akron, Ohio, to resume his duties as Director of Purchases of the Firestone Tire & Rubber Co.

The assignment of Mr. Koch was to secure effective and efficient procurement methods and operations throughout the Department of Defense, according to Deputy Secretary of Defense Roger M. Kyes.

Mr. Koch joined Firestone in 1925 and was assigned to the purchasing division of the Firestone Steel Products Company. In 1930 he was named Purchasing Agent for the parent company and in 1943 was made Director of Purchases.



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In many cases design is restricted and function limited when alloy steel parts are made on conventional machinery from bar stock or forgings. Frequently such designs can be improved and production costs lowered by the use of precision investment castings. That's because this casting process permits the use of high alloy steels that are difficult to machine or forge.

Take these four component parts of a pneumatic tool for example. They are Accumet Investment Castings made by Crucible of 8620 steel. They have a smooth, satiny finish and are held to very close tolerances. If these parts were not made by this "lost wax" process, the pneumatic tool could not be produced at a practical cost in its present design.

Crucible engineers and metallurgists are available to help solve design and production problems through the use of Accumet Precision Investment Castings. Write now, and let them help you solve yours.

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first name in special purpose steels

54 *years of* Fine *steelmaking*

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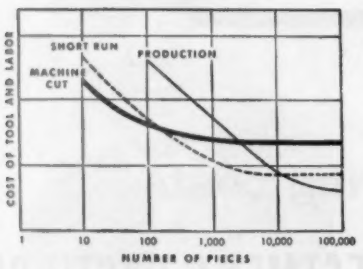
STAMPINGS

Our impartial use of three basic methods gives you economy regardless of length of run.

Most parts can be made by all three methods. But only **one** is **most** economical. The right decision is a technical one, based on **over-all** quantity, contour dimensions, tolerances and materials.

YOUR SUPPLIER SHOULD KNOW ALL THREE METHODS



This logarithmic chart shows the effect of these factors on the **specific part** illustrated. From 1 to 65 parts, our own **Machine-Cut Method** with no die cost whatsoever is most economical. At 65 parts, the **Short-Run Method** using economical blanking dies and stock punches is best. At 7,000 units, the standard **Production Method** with standard dies is most satisfactory.

For more information, use coupon on opposite page

STAMPINGS DIVISION

LAMINATED SHIM COMPANY, INC.

2401 Union Street, Glenbrook, Conn.

Stanley J. Rapsis is the new purchasing representative at Chrysler Corporation's Delaware Tank Plant, Newark, N. J. He succeeds Gordon K. Price, Divisional Purchasing Agent, who has been recalled for a new assignment in the corporation's central purchasing division in Detroit.

Mr. Rapsis joined Chrysler in 1936 as a member of the central engineering division and was transferred to the accounting division in 1938. In 1942 he joined the purchasing department, serving as an assistant buyer and buyer. In July, 1951, he was assigned to the tank plant in Newark as assistant to Mr. Price.

Stauffer Chemical Co., Los Angeles, Calif., has named **Arthur H. Swanson** as Director of Purchases and General Credit Manager.

Colonel E. W. Hess is now the Director of Purchases for United States Hoffman Machinery Corporation's Syracuse, N. Y., plants.

E. G. Berglind has been promoted to Purchasing Agent of the Wooster Rubber Co., Wooster, Ohio. Mr. Berglind has been assistant purchasing agent of

E. G. Berglind

the company for the past two years. Prior to that, he was purchasing agent for Star Drilling Machine Co., Akron, Ohio.

B. T. Rabuse assumes the newly-created post of Director of Purchases for Gould-National Batteries, Inc., Trenton, N. J. Williard C. Shull was named Purchasing Agent.

Martin J. Reed has been appointed Purchasing Agent of the Auto-Lite Battery Corp., Owen-Dyneto Division in Syracuse, N. Y. At the same time, it was announced that Phillip Giblin had been promoted to Assistant Purchasing Agent.

The Purchasing Department at the East Alton, Ill., plant of Olin Industries, Inc., has moved its personnel to 1856 East Broadway, Alton.

The Canton, Ohio, Division of **E. W. Bliss Company**, has named **M. E. Dorman** as Manager of Materials. In addition to supervising the division's purchasing department, he will be in charge of inventories, stores and receiving operations.

M. E. Dorman

Mr. Dorman has been associated with the company for 14 years and was previously Manager of Purchases for the Hastings, Mich., and Brooklyn, N. Y. divisions.

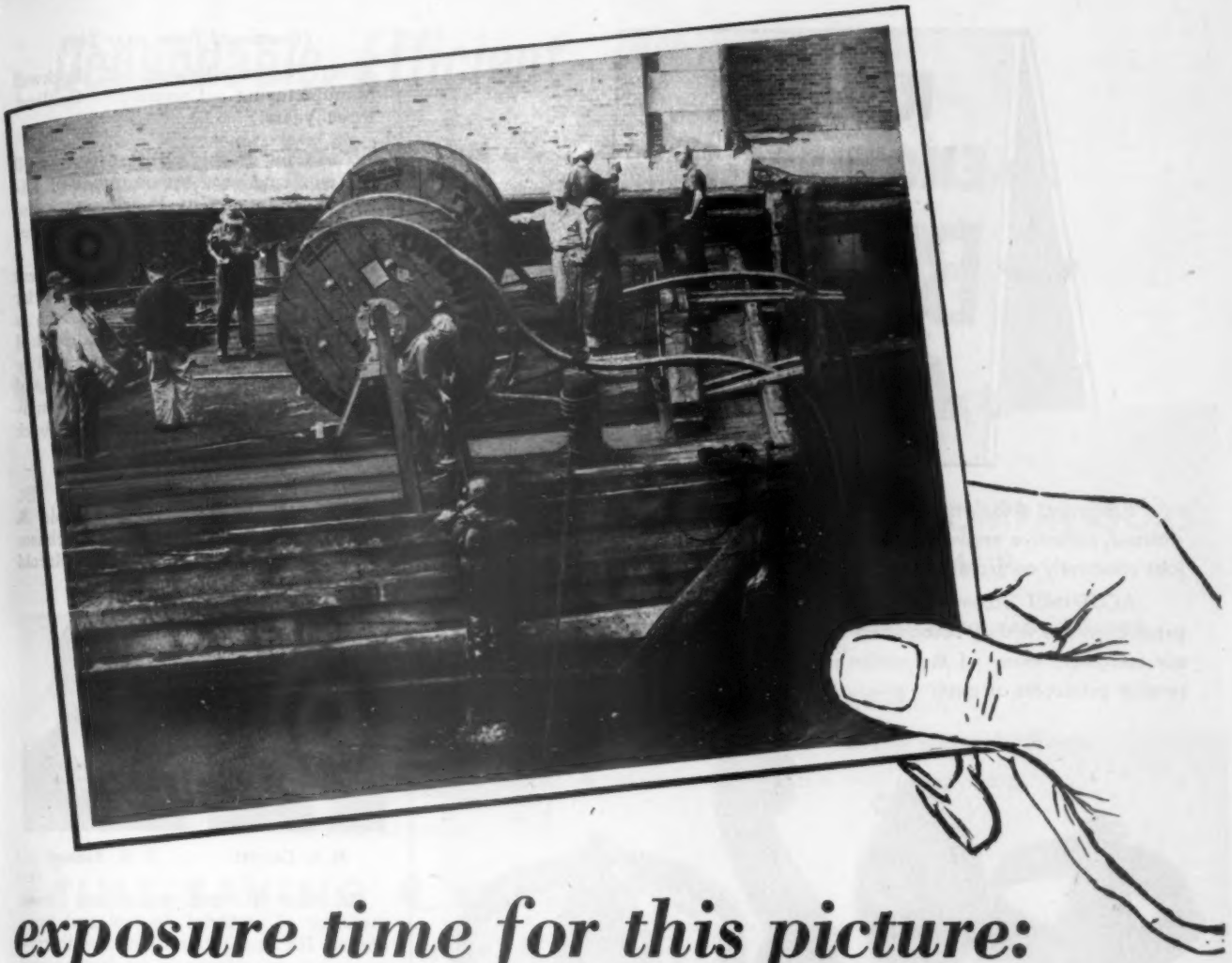
George D. Enos, Jr., former Purchasing Agent, is now Executive Vice President of Enos & Sanderson Co., Buffalo, N. Y.

Activation of the New York Quartermaster Purchasing Agency, New York City, has been announced by **Brigadier General R. P. Hollis,** who has been designated as commanding general of the newly-established agency. The agency, following deactivation of the Armed Services Textile and Apparel Procurement Agency, has been given purchase responsibilities for the procurement of Army, Air Force, and Armed Services Medical Procurement Agency textiles, apparel and related requirements.

Colonel Charles D. McColl will be deputy to Brigadier General Hollis and comes to this new assignment from the Oakland Quartermaster Procurement Agency, where he served for three years as chief, Procurement Division.

James W. Conley has been named Purchasing Agent of Rockwell's Sulphur Springs (Tex.) plant. He was with the Boiler, Tank and Pipe Company, Oakland, Calif., for more than 12 years; assistant manager of Moore Dock Company, Oakland, six years; was Assistant Purchasing Agent with the Moore firm; with Hough and Egbert, San Francisco, two years as port steward and Purchasing Agent; with Kaiser Steel Corporation, Oakland, two years as northern division sales-service manager; and chief buyer for the Nord-

(*Please turn to page* 248)



exposure time for this picture: 75 *years*

It took 75 years of Okonite research, engineering, and on-the-job experience to make this picture possible. For a submarine cable typifies Okonite's unusual skills in making insulated cables.

During the past 75 years Okonite has made many pioneering contributions to this type of cable in its gradual evolution to today's position of "watertight integrity." Okonite installed the first 69,000-volt, paper-insulated, lead-sheathed submarine cable in 1928 at Deepwater, Delaware. This company also made the first 132,000-volt, pipe-type submarine cable, which crosses the Hudson River at Newburgh, N. Y.

Perhaps the highest achievement in this industrial art is the now famous "Bonneville Cable," installed in 1951 in Puget Sound. This record-size cable has taken its place alongside 18 other Okonite submarine cables now operating in the Puget Sound area, some of which were installed over 25 years ago.

Since 1878, Okonite's one concern has been to make longer-lived cables. Over these years Okonite research has yielded an unusually high number of new materials, processes and techniques. They were confirmed first by Okonite's advanced testing procedures, and second, by the even more exacting test of service experience. The Okonite Company, Passaic, New Jersey.

OKONITE SINCE 1878 *insulated cables* 75

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Primarily, ACUSHNET sells rubber engineering "brains" — specialized, collective engineering skill that produces the solution to problem jobs constantly confronting the users of "precision" molded rubber parts.

ACUSHNET accomplishments in this specialized field of precision-production are widely recognized throughout industry. We count among our customers many of the nation's leading manufacturers, as well as smaller producers of quality products.

Our Engineering Staff will gladly study your prints and recommend stocks with properties to meet specified conditions, or work with your engineers in the initial stages of their designs. Our staff is particularly adept in designing molds that provide maximum production efficiencies and economies.

Acushnet PROCESS COMPANY

Send for your copy of the "Acushnet Rubber Handbook"

Address all communications to 770 Belleville Ave., New Bedford, Mass.

(*Continued from page 246*)

strom Valve Division of Rockwell Manufacturing Company, Oakland, three years.

The Long Beach, Calif., City Council has confirmed the appointment of **Edwin W. Hyka** as City Purchasing Agent to succeed **Amy H. Dutcher**, who retired July 20. Mr. Hyka has been a buyer and assistant purchasing agent for the city since June 23, 1952. Prior to that he had 15 years' experience as a buyer in private business. He worked for Buffums' and the Firestone Tire and Rubber Co. and was buyer and chief estimator for the west coast engineering department of Sears Roebuck & Co.

Wagner Electric Corporation, St. Louis, Mo., has appointed **Harold S. Garrett** Assistant Director of Purchases and Production Planning, and **Harold K. Kramer** as Purchasing Agent.

H. S. Garrett

H. K. Kramer

Mr. Garrett had previously been manager of material control and purchases. His appointment follows thirty-one years experience in production and purchasing activities with Wagner.

Mr. Kramer was assistant to the chief automotive engineer at the time of his new appointment. He has been with the company since 1933.

Catalytic Construction Company, Philadelphia, Pa., has appointed **John T. Hoffman** as Director of Purchases. Mr. Hoffman, who was formerly Assistant Director of Purchases, is succeeded in that position by Quay O. Saylor, formerly Chief Buyer.

Mr. Hoffman became associated with Catalytic in 1946 and has served in various capacities in the Purchasing Department. Mr. Saylor joined the company in March, 1953, and was previously associated with Koppers Co., Pittsburgh, Pa.

Clifford Chase, former member of the Maine legislature, has retired as Purchasing Agent for the St. Croix Paper Company, Woodland, Me., after 22 years of service. He joined the firm on April 1, 1931, as assistant to the master mechanic. In July of that year he became safety engineer and remained as such until 1939 when he succeeded J. H. McDaniels as Purchasing Agent.

Irving Shure, Purchasing Agent for the Conrad Hilton Hotel, Chicago, since 1950, has been promoted to Assistant General Purchasing Agent for the Hilton Hotel Corporation.

Dependable, Efficient

Curtis AIR COMPRESSORS AIR HOISTS AIR CYLINDERS

MAKES YOUR PRODUCTION MORE PROFITABLE

TWO-STAGE, AIR COOLED

PRECISION BUILT COMPRESSORS UP TO 50 H.P.

- Advanced two-stage design saves electric current.
- Delivers more air per horsepower.
- Timken tapered main bearings.
- Pressure lubricated rod and piston bearings.
- Assures long trouble-free performance.

TIME-SAVING Curtis Air Cylinders and Air Hoists

Curtis Bracketed Air Cylinder can be placed in any position from horizontal to vertical. Will lift, lower, push or pull.

- Low-Cost lifting, lowering, pushing, or pulling
- Accurately controlled operating speed
- Cylinders are ground and polished
- Valve is of disc type lapped to its seat.

Curtis Pendant Air Hoist for any lifting or lowering job where headroom is not limited.

In 1954,
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Capacity...Current... Load...Lift... Load.....Lift.....

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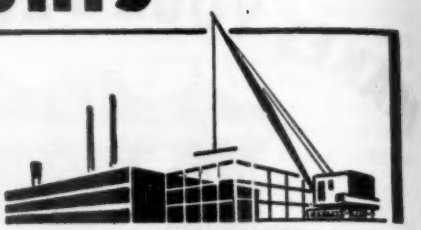


New building construction at its New York area steel service plant is nearing completion, according to an announcement from **Joseph T. Ryerson & Son, Inc., Chicago.**

Located on an 8-acre site near the present plant in Jersey City, N. J., the addition consists of two large building units, 110 feet by 605 feet, and 85 feet by 580 feet. Total floor area of the enlarged steel service facilities is about 355,000 square feet.

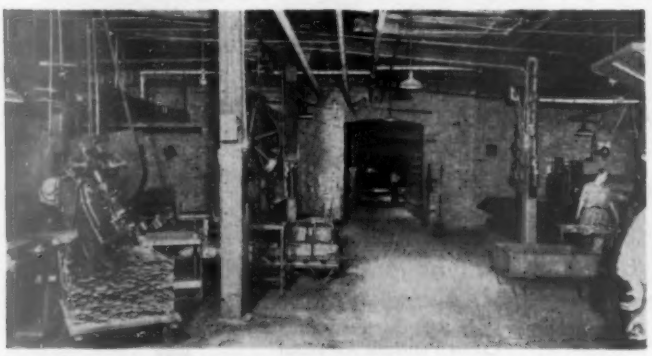
Steel handling and shipping facilities at the addition include two cranes in each building unit, a 40-foot truck driveway through the center of the building and railroad sidings of the Central Railroad of New Jersey and the Lehigh Valley Railroad at either end of the plant.

Wagner Electric Corporation, St. Louis, Mo., manufacturers of automotive and electrical equipment, has purchased from the Fulton Iron Works a five-acre improved tract adjacent to its present property. The tract contains five buildings, aggregating 125,000 square feet of floor space. Manufacturing buildings included in the sale are of mill type construction and are equipped with heavy cranes.

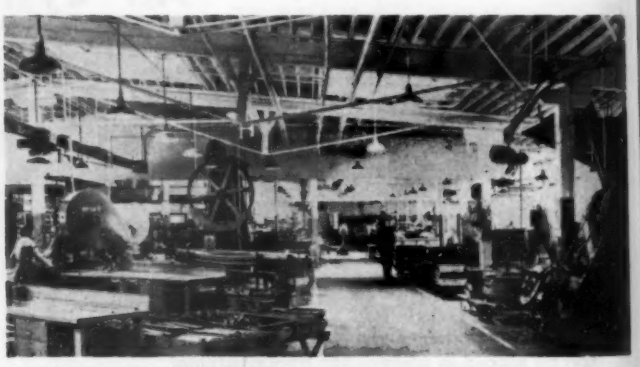
United States Steel Corporation, New York City, will begin construction of a steel container plant on a 26.7-acre plot in Pennsuaken Township, Camden County, N. J., for its United States Steel Products Division, shortly.

The new plant, designed for the production of steel drums and pails for the petroleum, chemical, paint, food and other industries, will have 168,000 square feet of floor space and is scheduled for completion early in 1955. Annual capacity of the Camden plant is scheduled to be 2,370,000 drums and 3,200,000 pails which will be manu-

(*Please turn to page* 252)



BEFORE MODERNIZATION, this part of the Lyons Metal Products, Inc., Aurora, Ill., showed unpainted walls, partitions and posts and a variety of production work grouped together.



AFTER RENOVATION the same area presents a broad expanse of well-lighted area with machinery placed to provide the utmost efficiency of production and smooth flow of material.

Scrap handling occupies valuable production space in this view of the Lyons plant. Note poor light in rear room where material is stored on skids on the floor around numerous wooden columns.

A little paint, new window sashes and removal of partitions has tremendously altered the aspect of the scene. Notice that production machinery now occupies space where skids had been formerly stored.

Waterbury's arithmetic gives

TOTAL SATISFACTION FOR YOUR

Phosphor Bronze

REQUIREMENTS

IN SHEET • STRIP • COILS

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This simple arithmetic gives you the right answer in phosphor bronze. It adds up four good reasons for contacting Waterbury Rolling Mills on your next sheet or strip order.

1. **QUALITY** — Selected raw materials, metallurgical laboratory control protect and maintain the quality of every shipment.
2. **ATTENTION** — Waterbury's flexible facilities and simplified organization make it possible to give every order identical attention and close follow-up.
3. **ASSISTANCE** — Waterbury's metallurgical experience and knowledge is available to help you on specific problems.
4. **DELIVERY** — Close follow-up, simplified production control, more compact facilities expedite quick shipments.

You can order Waterbury Rolling Mills phosphor bronze from the office nearest you.

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Established 1906

Main Office: Waterbury, Conn. • Tel. Waterbury 4-5131

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Chicago Representative: General Steel Warehouse Co., Inc., 1830 N. Kostner Ave. • BElmont 5-4266
Philadelphia Area Representative: John McNichol, 16 West Mill Rd., Flourtown, Pa. • WHitemarsh 8-1869

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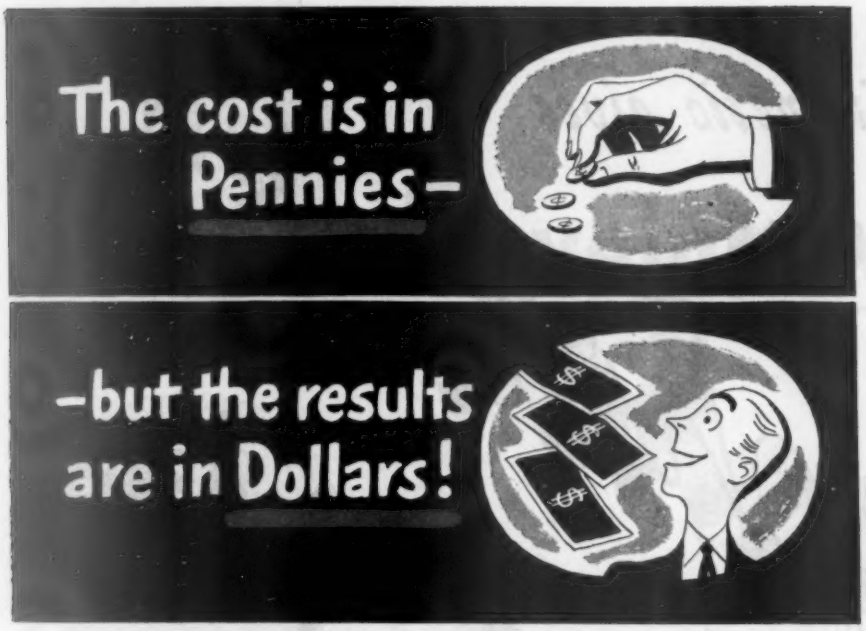

Never underestimate the importance of name plates on your product! Their worth is far out of proportion to the few pennies they add to your costs. As the "signature" on a product, the appearance of the name plate should reflect the maker's pride; its durability should match the quality of the product.

NAME PLATES THAT REFLECT QUALITY

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We have the experience, the skilled craftsmanship, plus the latest and best equipment to produce high quality metal plates—to provide standout identification at the right price. We produce instruction plates that are clearly and easily readable—and stay that way for the life of the product. Quality plates will pay you dividends.

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We are equipped to apply this protective coating to aluminum parts and products, by the exclusive Alumilite process—in a wide range of attractive colors. Write for quotation.

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Send a rough sketch, blue print or sample, with specifications, for quotation. Or write us fully about your requirements in name plates, instruction plates, dials, panels, scales, etc.

Write for our new book, "Etched or Lithographed Metal Products of Quality," containing full color examples.

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Metal Name Plates, Dials and Panels, Etched or Lithographed • Etched Metal Scales, Clock Dials, Trophy Plates, Plaques, Advertising Specialties • Etched Metal Panels for elevator and architectural uses • Coin Banks • Lithographed or Screened Plastic Name Plates or Dials • Aluminum Anodizing by the Alumilite Process.

SUBSIDIARY OF DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

(*Continued from page 250*)

factured on a 55-gallon high speed drum line, a combination heavy drum line, a combination light drum and grease drum line, and one high-speed pail line. Containers, chiefly for the petroleum and chemical industries, will range in size from 3½ to 7 gallon pails up to 100-lb grease drums and 55-gallon oil drums.

Inland Steel Company, Chicago, announced recently that one of its three blooming mills at its Indiana Harbor (Ind.) Works had been completely renovated during a fast 23-day changeover. Production loss was held to a minimum and amounted to an estimated 100,000 tons.

The blooming mill, which formerly was rated at 40-inches, now has a 46-inch rating and will be able to roll larger ingots and increased tonnages with greater versatility. While the blooming mill was being modernized, the company also made repairs on several open hearths which normally feed ingots to the mill. Further renovation of the blooming mill facilities during the next two years will see the installation of new shears, tables, and transfer and auxiliary equipment. When all the alterations are completed, the mill's capacity will have been increased by at least 25 percent.

Chrysler Corporation's Amplex Division is increasing production of Oilite self-lubricating parts through its expanded facilities at Trenton, Mich. The new plant, which was constructed earlier this year for production of defense materials, is being equipped with presses and machines for the new civilian work.

Design and construction services of **Koppers Company, Inc., Pittsburgh,** were expanded recently by the purchase of the business of American Ore Reclamation Co., Chicago. For many years a leader in the design and engineering of sintering machines and sintering plants, American Ore Reclamation Company has been accredited with many outstanding contributions to the technology of iron ore agglomeration.

Sintering activities formerly carried on by American Ore will be conducted by the Freyn Department of Koppers Engineering and Construction Division which currently handles Koppers sintering plant activities.

Selection of Texas City, Texas, as the site for company's first polyethylene production plant, was announced recently by **Monsanto Chemical Co., St. Louis, Mo.** Located adjacent to Monsanto's existing Texas City plant, the new polyethylene unit, operated by the Plastics Division, is expected to produce commercial quantities of polyethylene starting in the fourth quarter of 1954. Plans announced last March, before the site had been chosen, set initial annual capacity at about 66 million pounds with a 50 percent increased capacity scheduled for 1957.

Foot and Leg Protection

Stretch

Your Legging Money

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NEW

AO 1512R-CL LEGGING

with Replaceable Fabric or Frame

COVERING OR SPRING MAY BE REPLACED SEPARATELY!

You put your best foot forward financially when you choose this spring type legging to protect your worker's legs and ankles. Why? Because both the frame and fabric are removable and replaceable. Should either the frame or the fabric become unusable, either can be replaced. This feature is a great advantage over most leggings from a cost standpoint; yet the worker's safety and protection have in no way been minimized.

This very serviceable legging is available in chrome-tanned cowhide as the 1512R-CL . . . in asbestos as the 1481R-A . . . in flame-resisting duck as the 1482R-FR. Your AO Safety Products Representative can supply you with this highly serviceable protection.

NOTE: We recommend AO chrome-tanned cowhide or asbestos for protection against heat, sparks, and hot metal splashes. AO flame-resisting duck will do a fine protective job against sparks.

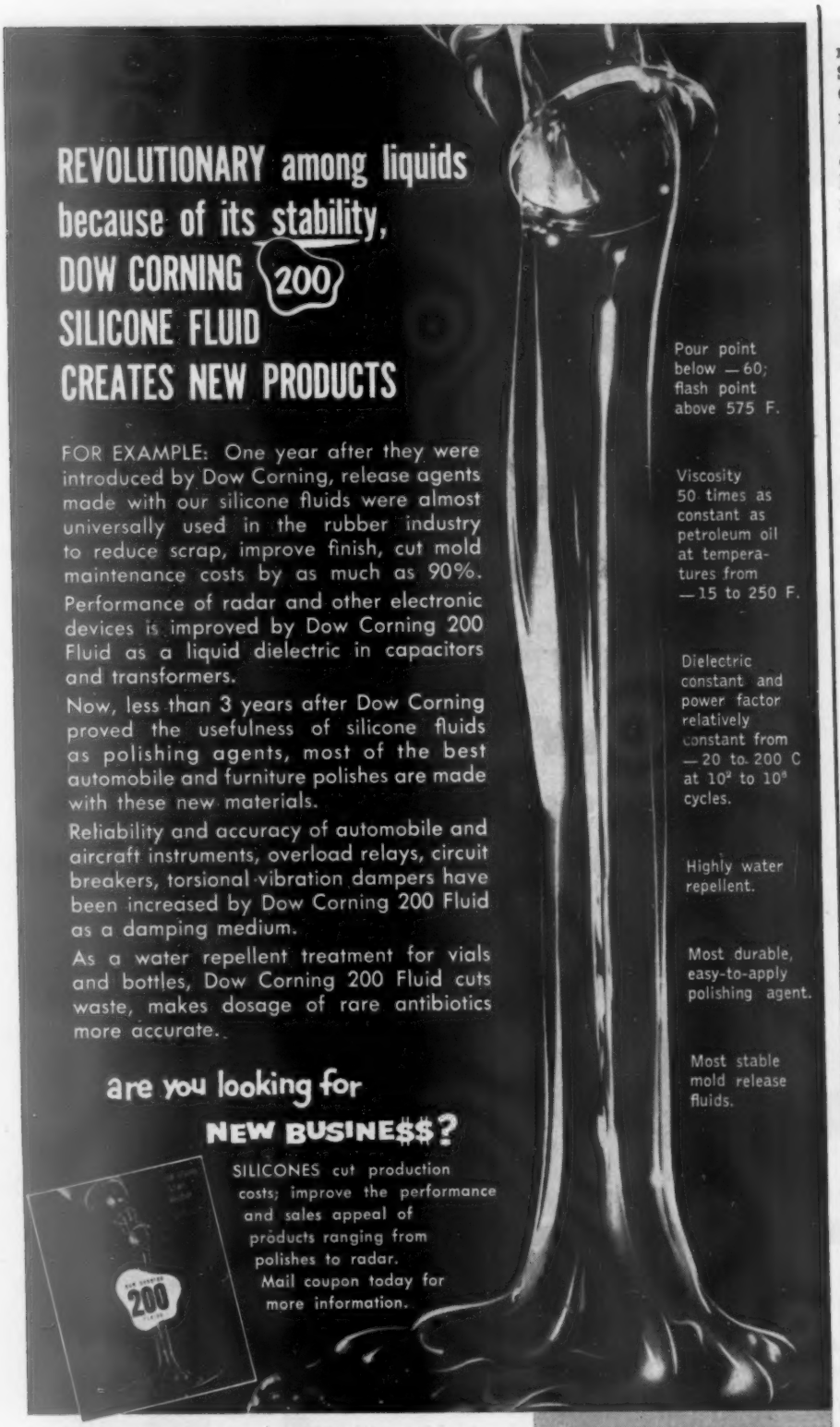
American Optical

SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

AO SAFETY ZONE

Keep your workers in the Safety Zone with AO Safety Equipment



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FOR EXAMPLE: One year after they were introduced by Dow Corning, release agents made with our silicone fluids were almost universally used in the rubber industry to reduce scrap, improve finish, cut mold maintenance costs by as much as 90%.

Performance of radar and other electronic devices is improved by Dow Corning 200 Fluid as a liquid dielectric in capacitors and transformers.

Now, less than 3 years after Dow Corning proved the usefulness of silicone fluids as polishing agents, most of the best automobile and furniture polishes are made with these new materials.

Reliability and accuracy of automobile and aircraft instruments, overload relays, circuit breakers, torsional vibration dampers have been increased by Dow Corning 200 Fluid as a damping medium.

As a water repellent treatment for vials and bottles, Dow Corning 200 Fluid cuts waste, makes dosage of rare antibiotics more accurate.

Pour point below —60; flash point above 575 F.

Viscosity 50 times as constant as petroleum oil at temperatures from —15 to 250 F.

Dielectric constant and power factor relatively constant from —20 to 200 C at 10^2 to 10^8 cycles.

Highly water repellent.

Most durable, easy-to-apply polishing agent.

Most stable mold release fluids.

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SILICONES cut production costs; improve the performance and sales appeal of products ranging from polishes to radar. Mail coupon today for more information.

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A $250,000 expansion of plant and manufacturing facilities at **Watson-Stillman Fittings Division, H. K. Porter Co., Inc., Roselle, N. J.,** was announced recently.

The expansion program includes additional land, buildings and the installation of specially designed automatic machine tools for increased production of forged steel fittings.

The Naugatuck Chemical Division, United States Rubber Co., New York City, is increasing the production facilities for **Kralastic,** a resin-rubber plastic, at the firm's Baton Rouge, La., plant.

The new facilities will triple the output of Kralastic and should be in operation by mid-1954.

A thermoplastic material, Kralastic retains much of its toughness and high impact strength at temperatures as low as —60°F.

The New Haven Pulp and Board Company recently changed its name to the New Haven Board & Carton Company. There are no changes within the internal management of the company.

Shell Chemical Corporation, New York City, is now operating an alcohol denaturing plant near Chicago, Ill. It will substantially reduce the time required by the company to service orders for Midwestern points. The plant is equipped to furnish the most generally used grades of specially denatured alcohols and proprietary solvents and to ship them by drum, tank truck and tank car to customers in Illinois, Indiana, Wisconsin, Michigan and parts of Ohio and Minnesota.

Carpenter Steel Company, Reading, Pa., recently opened its new mill-branch warehouse and office in Milwaukee, Wis.

American Potash & Chemical Corp., Los Angeles, Calif., has broadened its activities in the production of lithium products with the offering of lithium ores from a new source in Africa. The company has completed arrangements to handle lepidolite and petalite ore mined from a large deposit of high-grade lithium-bearing minerals located near Fort Victoria, Southern Rhodesia. The property is owned and will be operated by Bikita Minerals (Private) Ltd.

American Potash & Chemical Corporation has been producing lithium products for many years from the brine of Searles Lake at its plant in Trona, Calif.

Kling Brothers Engineering Works, Chicago, makers of steel fabricating machinery, have announced the purchase of all capital stock of the Pope Machine Co., Inc., Seattle, Wash., makers of plate bending rolls. The Pope plant will continue to operate in Seattle as a subsidiary of Kling.

Round MEANS CHAIN

Welded and Weldless Chain, Chain Assemblies, Slings and Fittings for Every Purpose

Before coming to America 84 years ago, the *Round* Family had been one of England's leading chain-making families for nearly 200 years. The name *Round* was on every piece of chain they built—and was a name that meant the *finest* chain.

In America, the Rounds continued to build chain in their same craftsman way. Soon the name *Round* became the standard for quality chain in *this* country.

In those early days, chain was built by hand. Now, most types are built by automatic machines. Though the present *Round* Organization has changed to new, modern methods of making chain, the *Round* policy of building quality chain has not changed.

Today, throughout the world, the name *Round* means Chain . . . the *finest* chain.

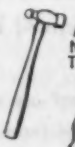
Welded and Weldless Chain

Vulc-Alloy and Wrought Iron Slings

Material Handling Equipment

Tire Chains and Accessories

Formed Wire Products


Albroloy Non-sparking Tools

Round CHAIN COMPANIES

THE CLEVELAND CHAIN & MFG. CO., Cleveland 5, Ohio • *Round* SEATTLE CHAIN CORP., Seattle 8, Wash., Portland 10, Ore.
Round BRIDGEPORT CHAIN & MFG. CO., Bridgeport 1, Conn. • *Round* CALIFORNIA CHAIN CO., So. San Francisco, Calif.
Round LOS ANGELES CHAIN CORP., Los Angeles 58, Calif. • *Round* WOODHOUSE CHAIN & MFG. CO., Trenton 7, N. J.
THE *Round* CHAIN & MFG. CO., Chicago 38, Ill. • THE SOUTHERN CHAIN & MFG. CO., Birmingham 4, Ala.
OHIO HOIST & MFG. CO., Cleveland 5, Ohio • *Round* CHAIN CO. OF CANADA, Brampton, Ont.
Round METAL FINISHING CO., Cleveland 5, Ohio
Round ALLOYS MFG. CO., Trenton 7, N. J.

how to save by buying cleaning results instead of just cleaning materials

for example: One Company saved $1,800 cleaning four heat exchangers in place

for example: A Food Processor cut cleaning-before-repainting-time from 2 *days* to 3 *hours*

Results—not merely cost per pound or gallon—determine your company's cleaning costs. You're bound to get the best possible results when you take advantage of Oakite's highly developed Technical Service. This is proved by the typical experience of others:

$1,800 saved on one job of cleaning four heat exchangers. Tube bundles formerly pulled out for cleaning. Oakite methods and materials permitted thorough cleaning right in place, saving costly handling time.

2-day-cleaning cut to 3 hours when Oakite cleaning experience, steam-detergent gun and the right cleaning materials were applied to clean a food plant's equipment for repainting.

Remember—Oakite provides all the necessary elements needed for best results (1) *exactly the right cleaner* for the job from over 80 Oakite materials (2) efficient time-and effort-saving methods (3) the cleaning knowledge, experience, advice of the Oakite Technical Service Representative who'll do his utmost to give you the best possible job at the lowest possible cost. Call in your nearby Oakite Man. Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

MATERIALS • METHODS • SERVICE

Technical Service Representatives Located in Principal Cities of United States and Canada

NEWS OF YOUR SUPPLIERS

John R. Hamill has been named manager of the Kansas City district office of the **Worthington Corporation, Harrison, N. J.** He had previously been manager of the Wilmington, Del., branch office.

Permacel Tape Corporation, New Brunswick, N. J., has promoted Albert A. Hally to director of sales planning. He had formerly been industrial sales manager.

A. A. Hally

G. A. Fitzgerald

George A. Fitzgerald has been named to succeed Mr. Hally as industrial sales manager, having moved up from automotive sales manager.

Airframe Supply Co., Akron, Ohio, has been appointed sales agent to handle industrial radiographic x-ray equipment in all states east of the Mississippi for North American Philips Co., Inc., Mt. Vernon, N. Y.

Leo A Kramer has been named district sales engineer, with headquarters in Chicago, for the Engineering and Construction Division of **Koppers Co., Pittsburgh.** He will be responsible for sales in the Midwestern and Western territories.

C. P. West has been named assistant to the manager and A. A. Johnson has been appointed manager of the **Switchgear Division, Westinghouse Electric Corp., Pittsburgh.**

James S. Anderson has been named general sales manager of the **Tubular Products Division, Babcock & Wilcox Co., Beaver Falls, Pa.** He has been with the company since 1941 and most recently was assistant general sales manager of the division.

Bemis Bro. Bag Co., St. Louis, Mo., has announced the appointment of J. V. Richards as manager of the Bemis Company's plant and sales division in Brooklyn, N. Y. Mr. Richards, who was assistant manager, succeeds the late A. C. Ewer.

The Glidden Co., Cleveland, has named George S. Forbes as director of the company's Central Region. Mr. Forbes' territory consists of Ohio, Western Pennsylvania, New York, Michigan, Indiana and West Virginia. His headquarters will be in Cleveland.

Does Your Treasurer Know This?

REYNOLDS ELIMINATES CAPITAL TIE-UP IN RAW MATERIALS

It's good economy to buy aluminum stampings, drawn parts or assemblies from Reynolds Aluminum Fabricating Service. This way, there is no tie-up of capital in raw material inventory . . . and, as these parts are generally billed after assembly into finished products, you eliminate investment tie-up in metal. This is particularly smart practice when you need your working capital for other uses.

Talk this over with your treasurer—and point out these facts, too. When you buy parts from Reynolds, you also eliminate scrap loss and scrap handling costs. You release valuable floor space. You add to your plant capacity without increasing costs. You cut material handling costs. You eliminate reject costs. These are examples of other ways that Reynolds Aluminum Fabricating Service helps free your capital for other uses.

For full details, call your Reynolds office listed under "Aluminum" in your classified telephone directory or write Reynolds Aluminum Fabricating Service, 2056 S. Ninth Street, Louisville 1, Kentucky.

MEMO TO PURCHASING AGENTS:

Write for your free copy of the new 24-page "Catalog of Facilities." Get full details on the tremendous production facilities of Reynolds Aluminum Fabricating Service.

See "Mister Peepers" Sundays on NBC-TV. Consult local listing for time and station.

REYNOLDS ALUMINUM

FABRICATING SERVICE

BLANKING • EMBOSSING • STAMPING • DRAWING • RIVETING • FORMING • ROLL SHAPING • TUBE BENDING • WELDING • BRAZING • FINISHING

PULLINGRIP

G&K Leather Belting "bear hugs" the pulleys for top production-power

It Grips — Leather's resilient, frictional surface "bear hugs" the pulley face, causing belt and pulley to move as one power unit.

It Pulls — Leather is strong, flexible, with controlled stretch — gives peak performance on *any* drive.

It's 3-Dimensional — Leather's millions of fibres are interlaced in all directions to form the tough *three-dimensional* structure so necessary for PULLINGRIP . . . *developed to the highest degree in G&K Leather Belting.*

Call your G&K Industrial Supplies Distributor for flat, round, link and V-belting, belt lacing, dressings, cements, packings and specialty leathers. Free Belting Catalog.

B-1

GRATON AND KNIGHT

Memo: Purchasing Agents

It takes top grade leather belting to handle a drive like this . . . but even the simplest drive in mill and factory will give you more production-power if it is equipped with G&K Leather Belting. Choose from three famous brands . . . RESEARCH®, HEART OAK, SPARTAN® . . . you'll get full value for your money.

GRATON & KNIGHT Company

WORCESTER, MASSACHUSETTS

World's Largest Manufacturer of Industrial Leather Products

Larry Eigenrauch, formerly production manager, has been named sales manager of **Eclipse-Pioneer Division Foundries of Bendix Aviation Corp., Teterboro, N. J.**

The appointment of Howard A. Reinhart as special representative for the West Side territory has been announced by the **Ohio Equipment Co.**

The appointments of Ray F. Ellis as director of sales and Burleigh L. Owens as director of marketing, has been announced by the **Atkins Saw Division, Borg-Warner Corporation, Indianapolis, Ind.** Both Mr. Ellis and Mr. Owens are long-time members of the Atkins sales organization and were, until recently, assistants to the vice president in charge of sales.

Ray F. Ellis

B. L. Owens

William Powell Co., Cincinnati, Ohio, has named Lee E. Cearnal as sales representative for Powell Valves in southern Georgia, South Carolina and Florida.

Lee E. Cearnal

Changes in the **Fansteel Metallurgical Corporation, North Chicago, Ill.,** sales personnel were announced recently. Richard I. Allen, who was district manager of the Detroit-Cleveland-Pittsburgh region, becomes sales manager of Fansteel's Weiger Weed & Company division, with headquarters in Detroit. Floyd Cessna moves from the Fansteel Detroit office to become district manager at Cleveland. Walter E. Bullock, who has been eastern district manager, moves to the Fansteel main office as field sales manager and George G. Gorman takes over Mr. Bullock's duties in the New York office.

... because H-VW-M anodes and plating chemicals are thoroughly tested here in this analytical laboratory. That's why we can stand behind our recommendations—and our products.
There's a lot that goes into the manufacturing of anodes and chemicals—a lot more than just following a formula. There's quality control, strict adherence to the rigid H-VW-M standards—constant checking for purity—and in anodes there's the important question of design as well as operating characteristics. That goes not only for all the standard H-VW-M anodes and chemicals, but also for the special types that are made for specific purposes.
The standards of purity of H-VW-M anodes and plating chemicals are but a few of the many results of H-VW-M's more than eighty years of constant development in electroplating ... a continuous policy best summed up in Platemanship—your working guarantee of the best that industry has to offer, not only in anodes and chemicals, but in every phase of plating and polishing.
8527
here's how we prove the purity of our anodes and chemicals...
PLATEMANSHIP
PLATEMANSHIP
PLATING & POLISHING PROCESSES • EQUIPMENT • SUPPLIES

For complete information on H-VW-M anodes and plating chemicals write for Bulletin AC-108.

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING CO., MATAWAN, N. J.

PLANTS AT: MATAWAN, N. J. • ANDERSON, INDIANA
SALES OFFICES: ANDERSON • BALTIMORE • BOSTON CHICAGO • CLEVELAND • DAYTON • DETROIT • GRAND RAPIDS • LOS ANGELES • LOUISVILLE • MATAWAN MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH ROCHESTER • SPRINGFIELD (MASS.) • STRATFORD (CONN.) UTICA • WALLINGFORD (CONN.)

H-VW-M

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

Specialists in

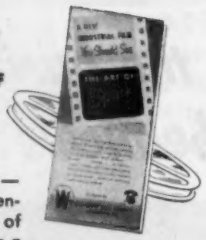
FURNACE TREATED
COLD FINISHED
STEEL BARS

WYCKOFF

TREATED
TO PROVIDE··

1 Uniformity throughout bars
2 Minimized warpage or distortion
3 Elimination of cleaning operation
4 Greatly improved machinability

NEW
WYCKOFF COLOR FILM



Spark Testing—a fast, inexpensive method of identifying metals by analyzing the elements present—is the subject.

Address requests for showings to our general offices.

Cold finishing provides the accurate dimensions and shape, the cold worked grain structure and the excellent finish you are accustomed to, but with Wyckoff *Furnace Treatment* you get all these *other* desirable properties in addition.

Yes, when you want the finest in cold finished steel, look to Wyckoff for the *specialized* processing that emphasizes *every* quality characteristic of fine cold finished steels. Specify Wyckoff *Furnace Treated* Cold Finished Steel Bars and be sure.

SPECIALISTS IN COLD FINISHED STEELS EXCLUSIVELY

WYCKOFF STEEL COMPANY

General Offices: Gateway Center
Pittsburgh 30, Pa.
Branch Offices in Principal Cities
Works: Ambridge, Pa. • Chicago, Ill. • Newark, N. J. • Putnam, Conn.

WYCKOFF STEEL PRODUCTS
Carbon and Alloy Steels • Turned and Polished Shafting
Turned and Ground Shafting • Wide Flats up to 12" x 2"
All types of furnace treated Steels

Edward Valves, Inc., East Chicago, Ind., a subsidiary of Rockwell Manufacturing Co., Pittsburgh, has named Rex E. Galloup as district manager for the Texas and Gulf Coast area.

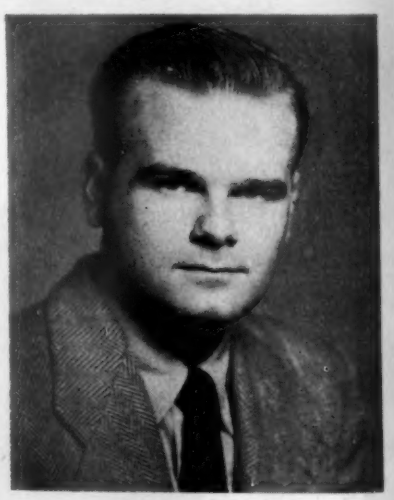
Udylite Corporation, Detroit, Mich., has appointed Russell E. Reynolds as

Russell E. Reynolds

sales engineer. Mr. Reynolds will work in the Pennsylvania district out of Udylite's Cleveland office.

National Vulcanized Fibre Co., Wilmington, Del., manufacturers of laminated plastics, has announced the promotion of Harry C. Hackett to staff sales manager and James O. Otis to sales manager. Mr. Hackett had previously been sales manager for the company since 1920. Mr. Otis was Mr. Hackett's assistant sales manager.

Thomas A. Johnson, a division field engineer in northern Ohio since 1952, has been appointed supervisor of sales



Thomas A. Johnson

of the **abrasives division of the Elgin National Watch Co., Elgin, Ill.** The division processes and markets diamond compound for polishing and finishing tools and dies.

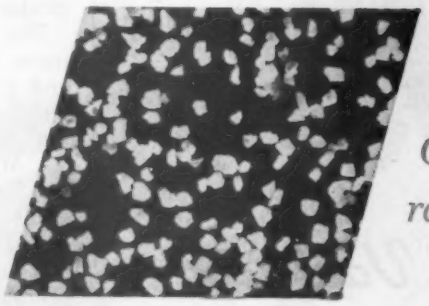
The Detroit sales staff of the **Monarch Machine Tool Co. of Sidney, Ohio,** has moved to 10600 Puritan Avenue. Telephone numbers remain the same.

NOW!

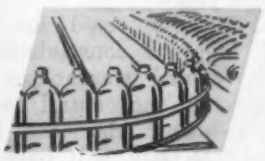
GENERAL CHEMICAL

ANHYDROUS SODIUM METASILICATE

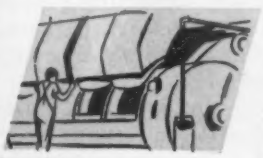
Na_2SiO_3



. . . another addition to General Chemical's wide range of Sodium Compounds



Uses: Bottle-washing plants



Laundries

Garages

Bakeries

Metal Cleaners

Heavy Duty mechanical dish-washers

Cleaning industrial equipment

In the textile industry

Water treatment to prevent corrosion

General Chemical's hydrated Sodium Metasilicate has long been recognized in the field of heavy duty detergents as a quality product, particularly suited to applications requiring an alkaline detergent which is extremely effective without being unduly corrosive.

General's new Anhydrous Metasilicate, like the hydrated product, is of exceptionally high quality. Behind it stands all of the experience the company has gained in half a century as a leading producer of Sodium Compounds.

It is produced as a free-flowing, white, granular material; screen size—all through 10 mesh, 1% maximum through 100 mesh. It is packed in 100 and 400 pound drums, and 100 pound bags.

For your requirements, consult the nearest General Chemical office listed below.

Basic Chemicals for American Industry

Allied Chemical

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Offices: Albany • Atlanta • Baltimore • Birmingham • Boston • Bridgeport • Buffalo Charlotte • Chicago • Cleveland • Denver • Detroit • Greenville (Miss.) • Houston Jacksonville • Kalamazoo • Los Angeles • Minneapolis • New York • Philadelphia Pittsburgh • Providence • San Francisco • Seattle • St. Louis • Yakima (Wash.)

In Wisconsin: General Chemical Company, Inc., Milwaukee

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

the A-B-C of M-S-T

A ALWAYS MAKES POSSIBLE
B BETTER PRODUCTS AT LOWER
C COST

Michigan
Electric Resistance
WELDED
STEEL
TUBING

A Quality Product

ROUND

⅜" to 4" O. D. 8 to 22 gauge

SQUARE-RECTANGULAR

½" to 2" O.D. 20 gauge
1" to 2¼", 14, 16, 18 gauge

Carbon 1010 to 1025

Michigan Tubing

has uniform strength, weight, ductility, I. D. and O. D., wall thickness, machinability, and weldability. It can be flanged, expanded, tapered, swaged, beaded, upset, flattened, forged, spun closed, fluted, and rolled. Available in a wide range of sizes, shapes and wall thicknesses, prefabricated by Michigan or formed and machined in your own plant.

Plus Fabricating of our own tubing Michigan is interested ONLY IN THE FABRICATION OF Stainless steel, copper, brass and aluminum tubing.

Vacuum Cleaner Handle

An excellent example of how the use of welded steel tubing simplifies assembly of parts, cuts down costs, is the cleaner handle made by Michigan for manufacturers of vacuum cleaners.

The handle is shipped by Michigan ready for chrome finishing and assembly to the vacuum cleaner. Stampings for the cord holders are welded to the tubing, an elongated hole punched for the interior wire cord and tumbler switch. The surface finish of the cold rolled steel tubing, as processed by Michigan, is suitable for polishing and chrome plating.

No matter what you manufacture, Michigan engineers will be pleased to consult with you concerning an application of welded steel tubing to improve your product and lower production costs.

Consult us for engineering and technical help in the selection of tubing best suited to your needs.

ELECTRIC RESISTANCE WELDED STEEL TUBING
Michigan STEEL TUBE PRODUCTS CO.
THE OLDEST NAME IN

More than 35 Years in the Business
9450 BUFFALO STREET • DETROIT 12, MICHIGAN
FACTORIES: DETROIT, MICHIGAN—SHELBY, OHIO

DISTRIBUTORS: Steel Sales Corp., Chicago, St. Louis, Milwaukee, Indianapolis and Minneapolis—Miller Steel Co., Inc., Hillside, N. J.—C. L. Hyland Co., Dayton, Ohio—Service Steel Co., Los Angeles, Calif.—Strong, Carlisle & Hammond Co., Cleveland, Ohio—Globe Supply Co., Denver, Colorado—W. A. McMichaels Co., Upper Darby, Pa.—A. J. Fitzgibbons Co., Buffalo, N. Y.—Harry E. Clark & Co., Houston Texas.

Nicholson Praised For Work On Milwaukee Warehouse

A new municipal warehouse, recently dedicated by City of Milwaukee officials, is expected to save the city as much as $90,000 a year. In a talk at the ceremony, Mayor Frank P. Zeidler paid tribute to Joseph W. Nicholson, city purchasing agent, as one of the leaders in the campaign for the new warehouse. Mr. Nicholson is a past president of the National Association of Purchasing Agents who has been prominent in governmental purchasing circles for many years.

The new building, which provides more efficient handling of supplies and greater storage space for large purchases, has been "in the making" for 25 years.

Mr. Nicholson said the new unit will help the consolidation of other city-owned warehouses. He said that when the central control and warehousing plan has been completed, the city will have not more than six strategically located warehouses, containing general and specialized items. A perpetual inventory has been set up, with tabular control.

Decision to build the warehouse resulted from a study by Albert Pleydell, former commissioner of purchase of the City of New York.

Westinghouse To Build New Metals Development Plant

Westinghouse Electric Corporation will build a new metals development plant at Blairsville, Pennsylvania. Scheduled for completion by late 1955, the new plant will be devoted to metallurgical development and pilot production of special alloys and special castings.

In announcing plans to build the plant, L. B. McCully, vice president in charge of Westinghouse East Pittsburgh divisions, stated that development activities at Blairsville will supplement but not duplicate specialized metallurgical effort now being carried on at the company's aviation gas turbine, atomic power, and lamp divisions. Although the plant will be primarily a metallurgical development center, it will produce some specialty materials for Westinghouse divisions.

A wrought alloy department will be completely equipped for melting, forging, hot and cold strip rolling, and heat treating. Casting facilities will be so planned that a wide range of metal castings operations can be undertaken.

NEW WILLSON Interchangeable Respirator

First truly interchangeable respirator. Requires no additional parts or accessories to use any one of the cartridges, filters, or combinations shown.

For Organic Vapors (BM2308)
For Dusts and Organic Vapors (BM2308)
For Paint Spray
For Acid Gases
For Organic Vapors and Acid Gases
For Ammonia
For Metal Fumes, Dusts, and Mists (BM2149)
For Radio-active and Beryllium Dusts, Mists or Fumes
For Dusts and Mists (BM2162)

These Respirators are individually packed in sealed, transparent plastic bags enclosed in a sturdy metal-edge box.

Write for the new bulletin fully describing these new Willson Respirators. Standardization on the new Willson No. 800 Interchangeable Respirator can greatly simplify your respiratory protective inventory.

More than 300 Safety Products Carry This Famous Trademark

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Established 1870

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Your 2 best tools deserve the best protection . . . JOMAC WORK GLOVES

Thousands of industrial plants are making enthusiastic reports about Jomac Gloves. They tell us that these twisted loop fabric gloves give better protection, provide a cushion against rough surfaces, sharp edges, bruising shocks—they keep workers on the job, they increase production.

Jomacs are economical too. They outwear ordinary gloves by 700%, can be washed or dry cleaned repeatedly without losing their protective qualities.

Time lost is money wasted. Give your workers better hand protection—give them Jomacs, the only work gloves made with job-tested Jomac Cloth. Write for our complete catalog. Ask about a trial order. C. WALKER JONES CO., Philadelphia 38, Pa. *Plants in Philadelphia, Pa., and Warsaw, Ind.*

JOMAC
INDUSTRIAL GLOVES

Large Rise In Electrical Imports Noted By NEMA

Imports of electrical machinery and equipment into this country were eleven times higher in 1952 than they were before World War II (1935-1939). U. S. exports of the same products in 1952 were only five times higher.

These figures are contained in a 240-page report made for the electrical manufacturing industry by the National Industrial Conference Board.

NEMA issued at the same time a report by its counsel on those domestic laws and regulations which affect the ability of American industry to compete with foreign products for U. S. Government business.

The study declares that administrative procedures meant to protect industry against undue tariff reductions have not worked. It says there is no effective appeal from the adverse ruling of an agency head except to public opinion.

NEMA has presented the Conference Board report to the Commission on Foreign Economic Policy, headed by industrialist Clarence B. Randall. The Commission was appointed by President Eisenhower and the Congress to make recommendations on international trade early next year.

J. H. Jewell, president of NEMA said:

"It is the hope and expectation of NEMA that this analysis (by counsel) and the report of the National Industrial Conference Board will aid in determining the extent to which resurgent foreign industry threatens American industry and the American standard of living."

The report gives five main factors that have contributed to the increasing foreign competition in the U. S. and third markets:

1. Industrial production in Europe has risen to levels one-third or more above their 1938 positions.

2. Foreign wage rates and wage supplements are from one-tenth to one-third those in the U. S. The wage differentials and the disparity in labor costs between the United States and foreign countries have widened substantially in the post-war years.

3. The work week in Europe is longer (44-48 hours) than in this country and overtime pay is smaller —25% premium pay—as compared with 50% or more here.

4. European export subsidies and special "dollar drives" are being used to stimulate exports, particu-

(*Please turn to page 272*)

let us carry your inventory—

fill your needs fast from CRUCIBLE *warehouse stocks*

No need to carry a heavy inventory burden. Our national chain of warehouses enables you to get fast, local delivery of all your special steel needs – right when you need them.

All Crucible warehouses from coast to coast carry a wide selection of tool, stainless, alloy and other special purpose steels, in most sizes and grades. You can be sure, too, of the same uniformly high quality from order to order.

Make our warehouse system your stockroom. To lighten your inventory problems – *call Crucible.*

Stocks maintained of:
Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits and Hollow Drill Steel) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . Max-el . . . AISI Alloy, Onyx Spring and Special Purpose Steels

CRUCIBLE first name in special purpose steels

54 *years of* Fine *steelmaking*

WAREHOUSE SERVICE

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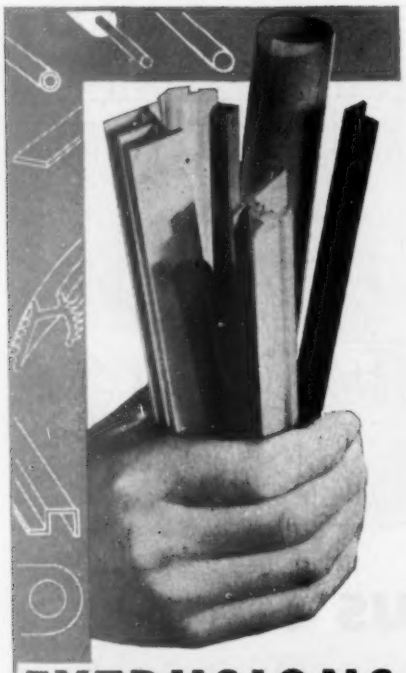
Branch Offices and Warehouses: ATLANTA • BALTIMORE • BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DAYTON DENVER • DETROIT • HOUSTON • INDIANAPOLIS • LOS ANGELES • MILWAUKEE • NEWARK • NEW HAVEN • NEW YORK • PHILADELPHIA • PITTSBURGH PROVIDENCE • ROCKFORD • SAN FRANCISCO • SEATTLE • SPRINGFIELD, MASS. • ST. LOUIS • ST. PAUL • SYRACUSE • TORONTO, ONT. • WASHINGTON, D.C.



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Plastic precision Extrusions made to your exact specifications.

RODS
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SHAPES
STRIPS
CURVED EXTRUSIONS*
CORED EXTRUSIONS
FABRICATED EXTRUSIONS

- No die charge for rods and tubes regardless of diameter
- Exact color matching
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12 page illustrated brochure describes 36 applications, gives details on materials, contains property tables.

WRITE FOR FREE COPY ON YOUR COMPANY LETTERHEAD.

ANCHOR PLASTICS
COMPANY, INC.

*Patented

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LONG ISLAND CITY 6
NEW YORK

(*Continued from page 270*)

larly to the United States.

5. Foreign competitors selling in their own, U. S., or third markets carry a sharply lower tax burden than U. S. manufacturers selling in their own or foreign markets.

Post-war European exchange controls and various other restraints on trade discriminate sharply against the United States as compared with non-dollar areas, the report says.

Germany's industrial plants, with lower wage rates and a longer normal work-week, are now more efficient than prewar as the result of modernized replacements of bombed-out and dismantled machinery. Because of this, trade taking the place of aid might well benefit Germany more than any of our World War II allies.

NEMA, which commissioned the report from the Conference Board, is an association of 546 of the nation's leading electrical manufacturers.

* * *

New Laminated Plastics Meet Rigorous Punching Requirements

Two new families of paper-base phenolic laminated plastics have been announced by Taylor Fibre Co., Norristown, Pa. and La Verne, Calif.

For application where high insulation resistance is a critical factor, Taylor XXXP-300 meets the most rigorous punching and staking requirements. It punches perfectly at 135° C. This means faster, more economical fabrication than can be obtained by any other laminate for this class of service. It offers excellent electrical characteristics, low water absorption, high dimensional stability, low power factor and good flame retardance.

Taylor XP-400 series laminates are called the first really successful solution to the need for a true cold punching laminate having good electrical characteristics. They actually punch cleanly and evenly at room temperature. No addition of heat is necessary. For thousands of applications, this means easier, faster fabrication and greater economy through a radical reduction in waste material and virtual elimination of rejects. In addition XP-400 offers low water absorption, high flame retardance and good staking characteristics.

Both materials are available for immediate shipment in 49" x 49" sheets.

an ACCO product WIRE

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FLAT
OR
SHAPED

PAGE
makes them all...

LOW CARBON
HIGH CARBON
STAINLESS
SPECIAL ALLOY
ARMCO IRON

YOU draw the Shape
—Page can draw the Wire

Tell us the way *you* want it. We'll follow *your* specifications.

Cross-sectional areas up to .250" square; widths up to ⅜"; width-to-thickness ratio not to exceed 6 to 1.

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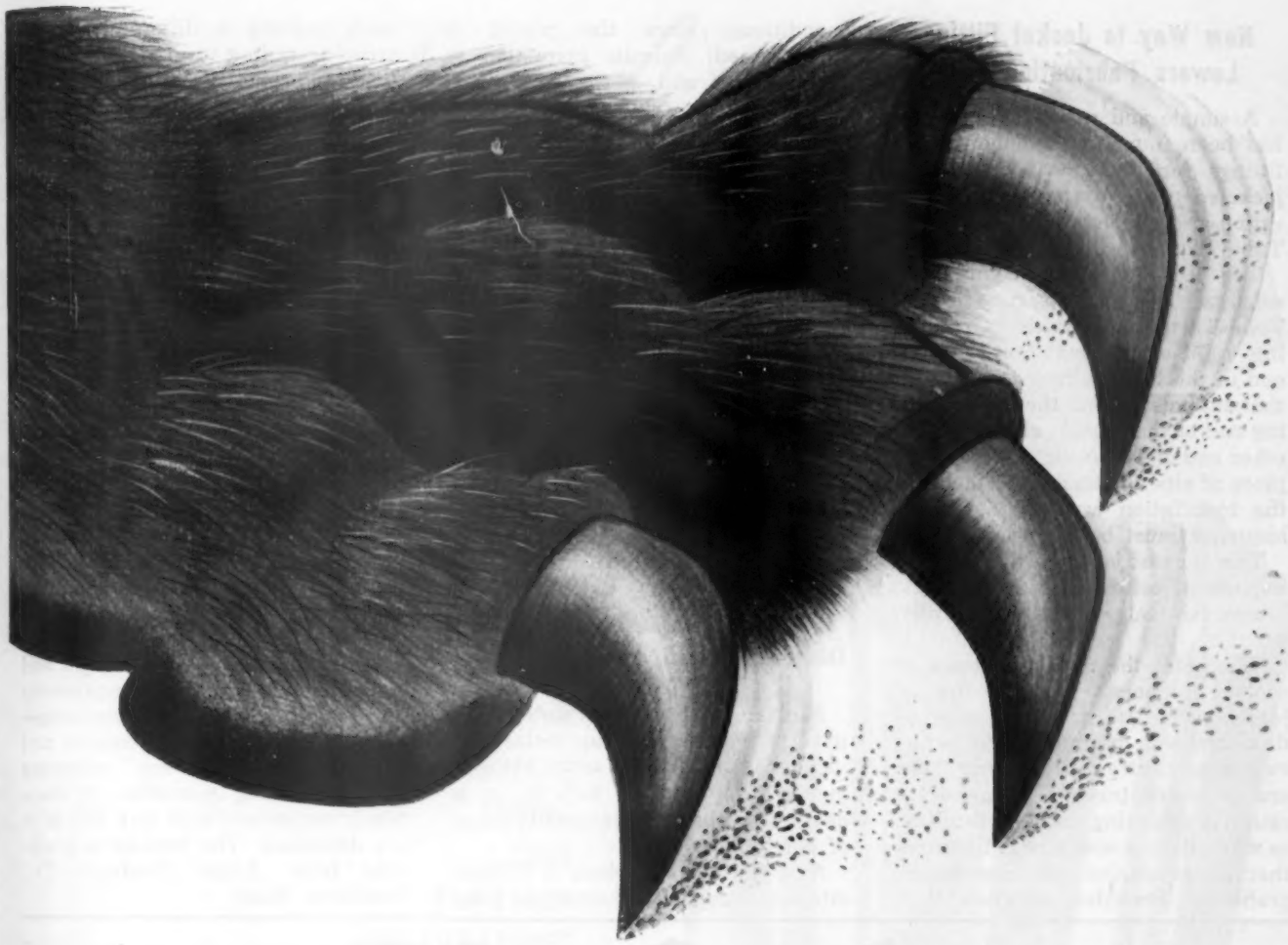
PAGE WIRE

ACCO

PAGE STEEL AND WIRE DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Portland, San Francisco, Bridgeport, Conn.



Once it gets a foothold, fire rips into your plant like a monstrous claw. That means you must guard every hazard– flammable liquids, electrical equipment as well as ordinary combustibles– with Kidde Portable Extinguishers or Built-in Systems. Call your Kidde agent today.

The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc. and its associated companies.

Kidde

Walter Kidde & Company, Inc.
147 Main St., Belleville 9, N. J.
Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

New Way to Jacket Fittings Lowers Fabrication Costs

A simple and relatively easy way has been found to employ welding fittings for directional changes in jacketed piping systems. The fabrication procedure was developed by Tube Turns, Inc., Louisville, Ky.

The jacketed fitting combination consists of long and short radius 90° Tube-Turn elbows, with their center line radii closely matching. On one end of the inside elbow is a tangent that extends beyond the corresponding end of the outside elbow. On the other end of the inside elbow a short piece of pipe is attached to facilitate the installation work. The welding sequence must be followed exactly.

This type of jacketed fitting offers important technical advantages and lowers fabrication costs. Specifically, it:

Eliminates the need for steam or coolant jumpers; eliminates flanged joints, except where piping must be disassembled; permits more accurate temperature control, since there are no concentrations of metals to cause overheating or undercooling, as when flanges are used; Minimizes thermal expansion and contraction problems; Provides optimum flow conditions, since the piping is streamlined; Permits insulation to be readily and permanently applied; Sharply reduces maintenance costs.

Scrap Salvage Technique Gets Best Prices Based on Type

Different priced grades are kept separate

McCulloch Motor Corporation is using a method of scrap metal salvage that weighs the scrap according to its type, and sells it on a day-to-day basis to take advantage of best prices.

A 92-foot disposal dock is divided into 1-ton capacity sheet-steel bins, each holding a different type of scrap according to grade. Every bin load is weighed by raising it to truck level with an overhead hoist. A Dillon 0-5000 lb. capacity weight indicator is placed between the hoist and the bin, tallying each "lift" quickly and accurately.

McCulloch says it expects to pay for the dock and scale in less than two years with the money saved by segregating and weighing the scrap and selling it promptly.

Handbook on Components For Unitizing Electronic Equipment

A new edition of the handbook "Ideas-Techniques-Designs", packed with new standard components for unitizing electronic equipment, has been issued.

It provides new data and planning sheets on plug-in packages and basic chassis for unitizing equipment and giving it 30-second interchangeability. Further improvements and newer components for indicating and monitoring operation of electronic equipment with tiny tell-tales are described. The booklet is available from Alden Products Co., Brockton, Mass.

AMERICAN
Tubular and Split
RIVETS
. . . In all metals, all styles, for all industrial applications.
Write for price list.
AMERICAN RIVET COMPANY
849 N. Kedzie Ave., Chicago 51, Ill.

BUY AMERICAN...Tubular and Split Rivets...

Proved Features—Improved Protection

- Fence fabric galvanized throughout
- Improved welded gates and locking devices
- Extra post and rail ties
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- H-Section line posts, 15% heavier
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SPONGEX

CELLULAR RUBBER
FOR

✓ STRIPS

SHEETS
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DIE-CUT SHAPES
MOLDED FORMS

Spongex cellular rubber strips can effectively solve many sealing, insulating and cushioning problems.

From molds made to your specifications almost any shape or form of Spongex strips are available with natural skin on all sides. Special shapes can also be furnished in endless forms; such as, squares, oblongs and circles. Some forms may be supplied with an outer cover of mechanical rubber for increased resistance to abrasion, weather and water.

If desired, Spongex strips can be compounded with special qualities; such as resistance to oils, acids, corrosive vapors and extremes of temperature.

Strips are only one of the many forms of Spongex cellular rubber. So the next time you need cellular rubber—check with us—we'll be glad to help.

A few strips in actual size

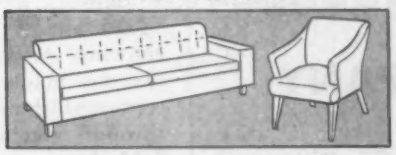
SPONGEX® *Cellular Materials*

THE SPONGE RUBBER PRODUCTS COMPANY, 28 Derby Place, Shelton, Connecticut
In Canada: Canadian Sponge Rubber Products, Ltd., Waterville, Quebec

INDUSTRIAL

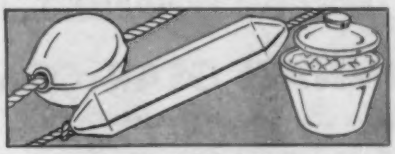
CELLULAR RUBBER

UPHOLSTERY CUSHIONING



TEXLITE RUBBERIZED HAIR—TEXFOAM

SEINE FLOATS—BOAT FENDERS—ICE BUCKETS



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HOME AND OFFICE

RUG CUSHION

MALLEABLE IRON CASTINGS

that you can depend upon!

The right connection—for the malleable iron parts you need—can be a source of satisfaction to you.

Many, many leading makers of durable goods use Moline Iron Works Malleable Iron Castings to uphold the quality of their products.

Good service, quality control and reasonable prices are three reasons why your connection with Moline Iron Works can be both a pleasant and profitable one. We invite your specifications for quotation.

WE SHIP QUICK!
Phone 4-5676 for Service

The parts shown here are representative of our production for automotive, farm implement, appliance and railroad customers.

MOLINE IRON WORKS
Moline, Illinois, U. S. A.

MOLINE IRON WORKS Since 1870 MOLINE, ILLINOIS U.S.A. SEVENTY YEARS OF SERVICE

Spur
Helical
Worm
Herringbone
Internal
*Coniflex Bevel
Spiral Bevel
Spline Shaft

Regardless of what Martin "Old Kinderhook" Van Buren had in mind when he introduced the term "OK" in the 1840 Presidential campaign, today "OK" has come to mean "well done." And "OK" is what our customers say about the custom gears we deliver to them. Why? Because the combination of attention to details and over 45 years of "know-how" means every gear we produce is a masterpiece of craftsmanship. So specify Cincinnati Gear on your next custom gear order—and you'll put your stamp of approval on our gears too.

*Reg. U. S. Pat. Off

THE CINCINNATI GEAR COMPANY
"Gears . . . Good Gears Only"
Wooster Pike and Mariemont Ave. • Cincinnati 27, Ohio

Buyers' Market Is Subject Of A-C Purchasing Meeting

"Be Prepared for a Buyers' Market" was the theme of the annual three-day conference of Allis-Chalmers purchasing division held November 9, 10 and 11 at the West Allis Works. In attendance were purchasing agents and assistant purchasing agents from the company's General Machinery and Tractor division plants.

Company speakers included W. A. Roberts, president; A. W. Van Hercke, vice president, director of engineering, Tractor Division; N. D. Johnson, assistant treasurer and assistant secretary; T. D. Lyons, assistant comptroller; E. H. Jones, assistant to the general traffic manager; C. J. Kraus, assistant general traffic manager; John B. Baker, law department; H. C. Sommer, supervisor, insurance accounting department; R. F. Alt, general auditor, and M. J. Fahey, manager, accounting forms and procedures.

Purchasing division personnel on the program included K. R. Geist, director of purchases and chairman of the conference; J. P. Kern, A. D. Foote, R. E. Joseph, R. E. Lewin, and F. J. MacDougall, all of West Allis Works; H. W. Hauser, Boston Works; C. E. Temple, Gadsden Works; E. R. Gartner, La Porte Works; W. V. Kauffman, Springfield Works; H. J. Zeck, Pittsburgh Works, and J. H. MacDonald, St. Thomas (Ontario) Works.

A feature of the conference was a visual demonstration of purchasing practices at West Allis Works conducted by R. W. Bjorklund, C. K. Saber, S. C. Bielawski, Goldie Bateson, and E. P. Dunn.

Metals forum sessions were addressed by Charles Braglio, assistant manager, Developing Division, R. R. Cope, engineer in charge of electrical development, and William Derry, Milwaukee district office, all of Aluminum Company of America; M. McCarthy, assistant sales manager, Anaconda Wire & Cable Co.; C. E. McIntyre, manager, Milwaukee office, and B. E. Estes, director of commercial research, both of U. S. Steel Corp.

Film Explains Taps

Threadwell Tap & Die Company is offering a 15-minute slide film, "Taps and Tap Terms," for group showing. Arrangements for showing can be made through Threadwell representatives and distributors, or through the company, at Greenfield, Mass.

ONE OF A SERIES OF ADVERTISEMENTS ON THE HISTORY OF ELECTROPLATING

a midnight sale that opened **the door to new plating profits**

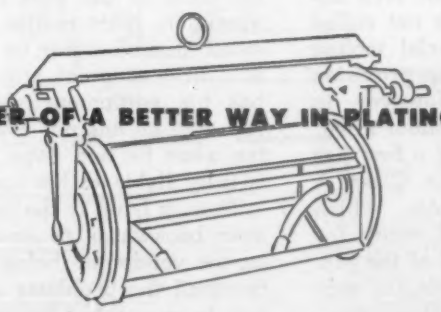
Back in 1934, Udylite's young president, L. K. Lindahl, threw the necessary parts for a complete plating barrel into his car and headed for Kokomo, Indiana. He arrived at midnight. His prospective customers – a plating shop owner and the superintendent–were waiting for him.

On the shop owner's desk, Lindahl assembled, disassembled and reassembled the barrel. It was a perfect machine fit of parts picked at random from stock. It was the first barrel providing perfect assembly of standard parts! Easily removable panels and other superior features of the barrel completely sold both men. Udylite got the order!

The months of research by the Udylite technical team had paid off! The barrel was unique because it was made from a material heretofore untried . . . hard rubber. In addition, electricity was conducted through the ends of the barrel by easily removable contacts. This first Udylite Barrel had again provided *a better way* in plating.

Udylite knew they had the best unit in the industry –one that upped production, cut costs, saved manpower. But the "midnight sale" proved the acceptance and value of this revolutionary product.

In the following years, Udylite Corporation continued to pioneer improvements and innovations in plating barrels. Bakelite, hard rubber and melamine materials were followed by the present super-resistant lucite plating cylinders. But that's not all! Udylite engineering and research teams are constantly at work perfecting still better materials, methods and equipment . . . all designed to give you better plating at lower cost.



PIONEER OF A BETTER WAY IN PLATING...

THE *Udylite* CORPORATION
DETROIT 11, MICHIGAN

Created Specifically for Users of Wiping Cloths

First Quality

SOFTOWL wiping cloths

- **White Cotton**—all virgin fibers. No waste or reclaimed material.
- **Highly Absorbent**
- **Lint Free**
- **Nonwoven**
- **Highly Resistant** to Oil and Solvents
- **Soft,** Yet Strong, Wet or Dry
- **Disposable or Reusable**
- **Suds Rinse** Clean and Fresh

WRITE TODAY FOR SAMPLES, PRICES AND COMPLETE INFORMATION

THE VISKING CORPORATION

The Visking Corporation
P.O. Box 72, Dept. P-1
North Little Rock, Arkansas

Please send samples, prices and complete information on SOFTOWL Nonwoven Wiping Cloths.

NAME_____

FIRM_____

ADDRESS_____

Preparing For Terminations

(*Continued from page* 102)

abnormal scrap. This comes under the heading of "Initial or Starting Costs", recognizing the fact that on every job, to a greater or lesser degree there is a learning period which would ordinarily be amortized over the whole run and which, due to the termination, was not completely liquidated.

Like the second item, the next two are items of cost which, while never appearing in any form on the purchase order, are nevertheless calculated by the vendor at the time he makes his bid.

Normal Business Practices

Let's take, for example, the case of a vendor who must produce 2,000 machined castings with several critical dimensions between .001 and .0005. The vendor is to procure his own pattern and castings. Now, while he knows that his customer will probably accept a 5 to 10% overrun, he also knows that if he orders only 2,200 castings and happens to have a bad run, he will find himself in trouble and may have to reschedule a small number of replacement castings towards the end of the job, probably at considerably higher cost than the production run.

Remember, when the vendor gets an order, his mind is not on what he will do if it is terminated, but rather on getting the job done in the shortest time at lowest cost. If the product is of a highly competitive nature, he might be taking the risk of having all profit wiped out if he orders the minimum number of castings required. So, as a normal business practice, he will order enough at the start to insure his complete performance. And, since it is a normal practice, the Government is willing to pay for the costs of procuring a reasonable amount of material over and above the amount specified to exactly fill the order.

Going one step further, let's assume that the vendor is not called upon to supply any special tooling and therefore there is no provision for it on the order. However, in estimating the job, the vendor might have planned on making a few jigs and fixtures, not of the Class A variety but rather those which would be worn out and ready for the scrap box at the end of the job. As a result, when he gets the job, he expends money on these nondurable tools—and then the contract is cancelled. Generally, if the tools are such that a prudent machinist would have had them made in the interests of efficiency, they are reimbursable items.

In view of the above, it is clear that the vendor is not to be penalized for following normal business procedure prior to a termination.

Avoid Excessive Claims

However, it should be made equally clear, that the vendor will not be allowed to run wild in collecting because of the termination. As previously pointed out, the settlements which the prime contractor makes with its vendors are subject to review by the Contracting Officer and perhaps by the Audit Agency. Therefore, if a prime goes overboard in settling with subcontractors, the prime may end up footing the bill for the difference between what actually should have been paid to the vendors and what actually was paid. In other words, after the vendor "sells" his settlement proposal to the prime, the prime must, in turn, "sell" it to the Government.

It is well, then, to insure against the acts of one or two unscrupulous vendors. This can be done by setting a deadline for accepting items in transit at the time of the termination to avoid the problem of the vendor who, having a job 90% complete in his shop, may finish it up and ship it with the prepared explanation that it was "on its way" when the telegram arrived. All inventory items should, unless the Government orders otherwise, be carefully inspected to avoid paying for barrels of scrap as 80% completed items.

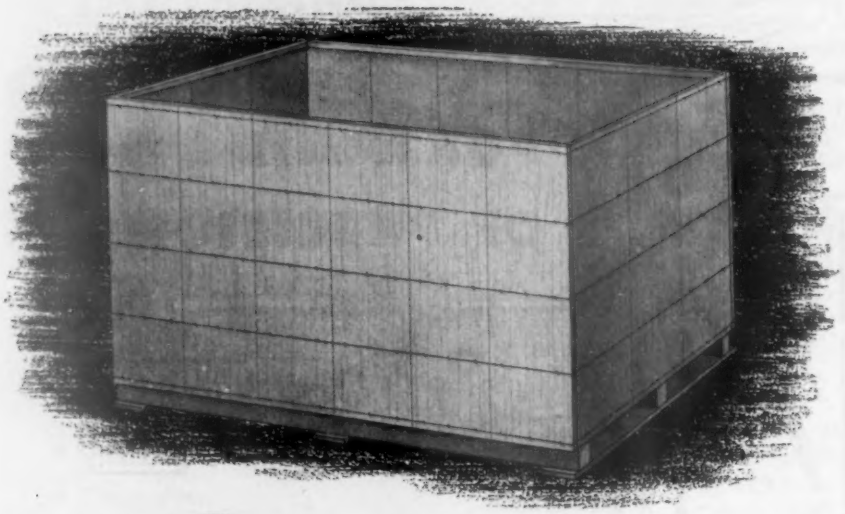
Consideration for Vendor

Lastly, it should be remembered that although one particular contract has been cancelled, the buyer may have need of the vendors involved later on another contract. The buyer, having leaned heavily on them in the past for their cooperation, must realize that for the small manufacturer, a termination is a time of great stress. Not only has his equipment suddenly been left idle, he has not even been paid for what he had done although he is fully liable to his suppliers.

Thus, it is up to the buyer to bend over backwards to ease the strain on the vendor by being able to understand the problems and to assist him in smoothing the path towards processing and payment of his claim.

PORTRAIT
OF PRECISION
We make a big thing out of small parts because we know that your product's performance depends on even its smallest and least expensive parts.
Automatic machinery of our own design, produces over 10 million pieces like these *each day* . . . to customers' exact specifications of dimension, concentricity, temper, hardness and finish . . . in *any* metal.
Almost 90 years of precision metal-working experience enables us to produce your small parts *faster, better, and for less* than you can make them yourself.
Our quotation costs you nothing—*may save you plenty!* Send us a sample part, a blueprint, or sketch and a letter outlining your requirements. We are sure that our terms will be welcome news. We will be glad to send you our Condensed Catalog showing many more parts we can produce for you.
THE TORRINGTON COMPANY
Specialties Division
555 Field Street, Torrington, Conn.
TORRINGTON SPECIAL METAL PARTS
Makers of Torrington Needle Bearings

A Multi-Purpose Box That Answers Materials Handling Problems...



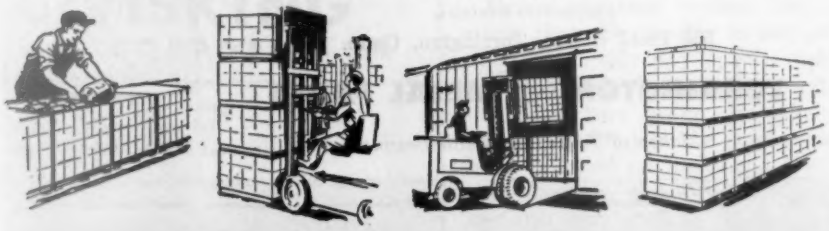
SHIPPING TRADE SUPERSTRONG MARK CONTAINERS REG. U.S. PAT. OFF.

WIREBOUND PALLET BOX

The versatility of wirebound containers is well exemplified in the SUPERSTRONG Wirebound Pallet Box. You can use it on the production line ...for interplant transportation of parts...as a storage bin...as a shipping container which may be easily knocked down and returned for reuse.

SUPERSTRONG Wirebound Pallet Boxes are light in weight, sturdily constructed—and offer an economical answer to materials handling cost problems. They are engineer designed and built to your individual requirements.

We would appreciate an opportunity to study your problems and offer our suggestions.



RATHBORNE, HAIR and RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

Purchasing Personnel

(*Continued from page* 118)

The primary purpose of the exclusionary language placing a limitation on the amount of non-exempt work is to distinguish between the *bona fide* executive and the "working" supervisor who regularly performs work which is unrelated or only remotely related to his supervisory duties. Clearly, the work of the same nature as that performed by the employee's subordinates must be counted as non-exempt work according to the wage-hour formula. If the amount of such work is substantial, the exemption would not apply.

These are, in many instances, unrelated to anything he performed because the job does not involve sufficient executive duties to occupy his full time. In other instances, the non - supervisory, non - managerial duties may be the principal ones, and the supervisory or managerial duties are subordinate—assigned to the particular purchasing executive because it is more convenient to rest responsibility for the first line of supervision in the hands of the person who performs these other duties.

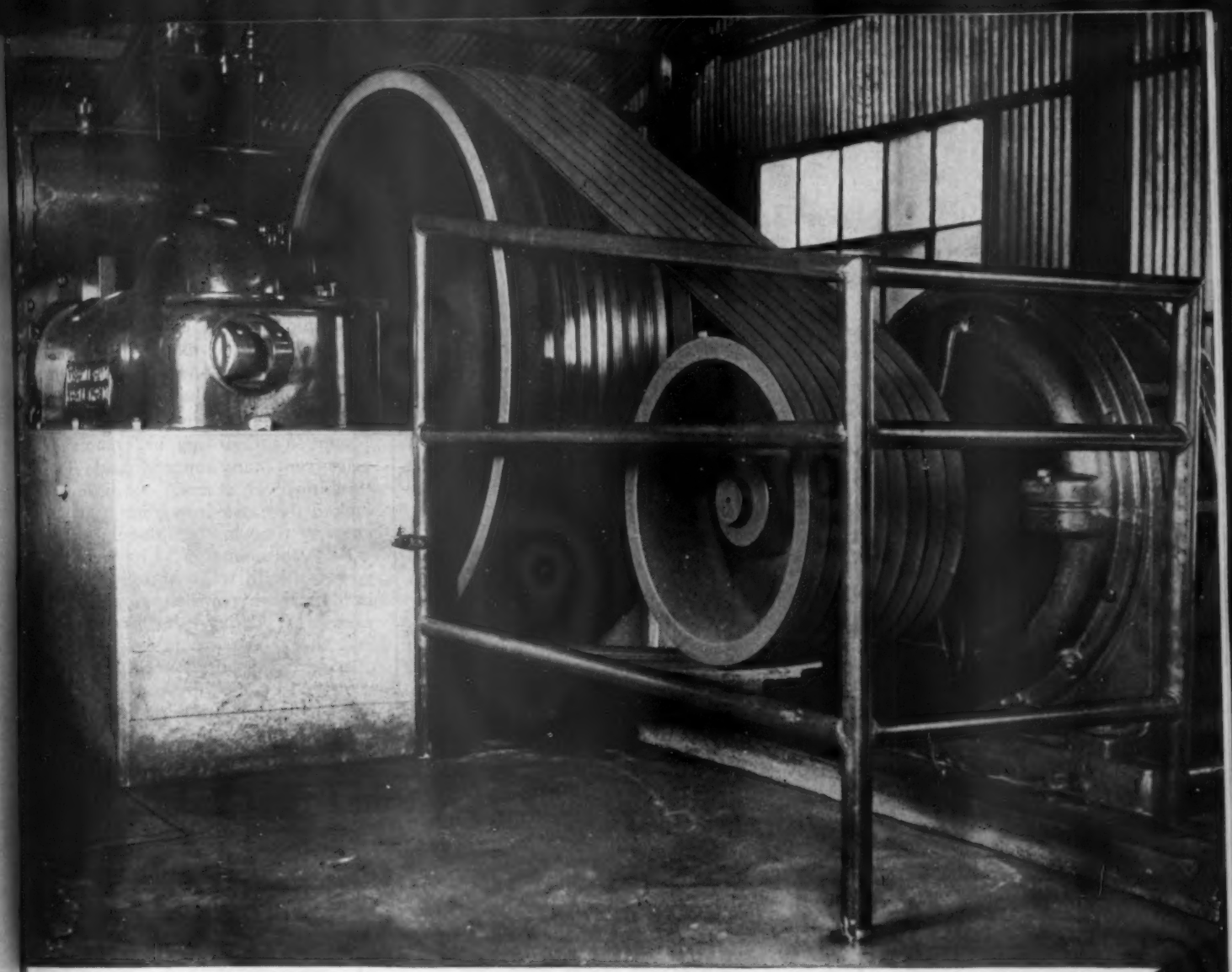
In other words, job titles are insufficient as yardsticks in claiming that a purchasing agent or executive is exempted from overtime compensation after 40 hours weekly. Titles are of no determinative value. As has been previously indicated, the exempt or non-exempt status of the purchasing executive must be determined on the basis of whether his duties, responsibilities, and salary meet all of the requirements cited above. If they do not meet these tests, he cou'd not claim exemption.

Obviously, an employer must keep accurate and adequate records on all employees. The purchasing agent is no exception to the rule. Since a wage-hour inspector's first contact with an employer is through an examination or audit of the records, inaccurate and incomplete data could prove costly. The following record items should be kept on the purchasing agent:

1. Name in full.
2. Home address.
3. Occupation in which employed.
4. Time of day and name of the day on which the employee's workweek begins.
5. Basis on which wages are paid.
6. Total wages paid each pay period.
7. Legal deductions made.
8. Date of payment and pay period covered by payment.

Section 16(a) provides for heavy

(*Please turn to page* 282)



Thermoid Multi-V Belts cut operating costs

Thermoid Industrial Rubber Products — Quality · Value · Service

C, D and E Section Belt

There's a Thermoid V-Belt for every plant application. Every belt is *pre-stretched* to provide longer service and maximum power transmission without slippage. Thermoid C, D and E sections are rayon-grommeted for brute strength and extra flexibility that withstands repeated shock loads. The entire belt is vulcanized into a solid unit that resists moisture, abrasion, internal friction and heat.

Get longer wear with less maintenance . . . cut your operating costs with Thermoid Multi-V Belts. Call your Thermoid Distributor or write direct for Catalog #3787.

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

Photo courtesy Clark Grave Vault Co.

BRAINARD STRAPPING SYSTEM

This complete service simplifies your materials handling

• This *on-the-job demonstration* by Brainard salesman Jack Worrel, of Columbus, means dollar savings to his customer, a manufacturer of heavy steel vaults. Brainard steel strapping holds the corrugated covering securely, protecting the product from damage in transit or storage.

Chances are there's a Brainard salesman near you—we have offices throughout the U. S. and in Canada. Let him help you develop more efficient methods for packaging, palletizing, carloading, bundling, crating and warehousing. He's factory trained, and equipped to analyze, recommend, and demonstrate. For complete information write Brainard Steel Division, Dept. FF-1, Griswold Street, Warren, Ohio.

Brainard
SHARONSTEEL
STEEL DIVISION
SHARON STEEL CORPORATION

Purchasing Personnel

(*Continued from page* 280)

penalties for non-compliance: $10,000 fine, 6 months imprisonment, or both. In addition, the employer may subject himself to injunctive litigation, criminal actions, or wage suits brought by an employee who is employed in a capacity of purchasing agent or executive not officially exempted, and where double damages are a probability of the act.

As a former wage-hour inspector, I can say that tips or complaints arise from many sources. Aside from this, however, it must not be overlooked that a re-inspection may occur any time in the future.

For years, employers have had to go along with wage-hour inspectors in determining which employee is exempted. Today, the problem is still there because unless the purchasing agent or executive meets the requirements, the employer may have to re-compute a sizable sum of additional or unnecessary overtime pay. It's expensive enough without making it more so by unwitting mistakes, especially as a result of misclassification. In any event, it all requires checking the record.

* * *

Evaluating Purchasing Efficiency

(*Continued from page* 112)

No, for we are only measuring quantity. There still remains quality, equally or more important.

Quality is much harder to appraise, because so much depends on personal judgment. However, since we certainly can't be satisfied with any measuring system that fails to cover "how well", we need to devise some practical techniques for making qualitative reviews.

The following check list might well be the starting point for periodically appraising the quality of the job we are doing. Of course, it should be adapted to each particular situation.

Professional Aspects

1. Do I get a fair price?
2. Do I have the respect of my suppliers?
3. Do I shop around enough?
4. Do I have a good standards program?
5. Do I engage in new products research?
6. Do I visit my sources of supply?
7. Do I get around to see my purchases used?
8. Do I maintain adequate records

(*Please turn to page* 284)

Walworth manufactures a complete line of Gate, Globe, Angle, Check, and Lubricated Plug Valves, made of Stainless Steel, Steel, Iron, Bronze, and Special Alloys in a wide range of sizes and temperature-pressure ratings.

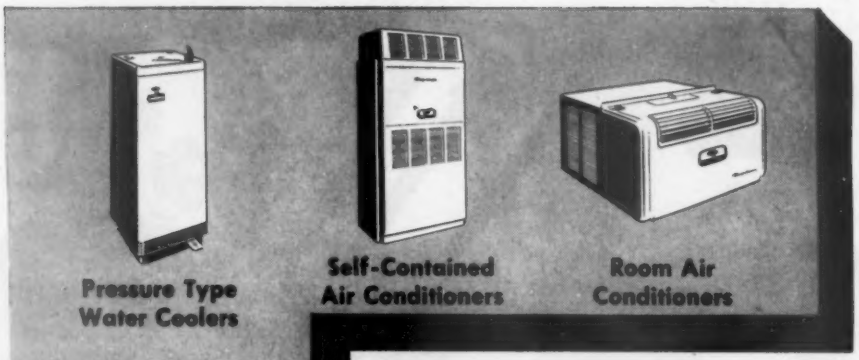
Fittings of steel, iron, and bronze are also manufactured in all conventional types and sizes.

WALWORTH

valves and fittings

60 East 42nd Street, New York 17, N. Y.

Distributors in principal centers throughout the world



Buy Better... Buy FRIGIDAIRE

More and more men who buy for industry are making Frigidaire their first source for cooling equipment of every kind. They've found it pays real returns in higher performance, lower operating and maintenance costs, as well as in real dependability.

Call the Frigidaire distributor or Factory Branch that serves your area. Or write: Frigidaire Division, Dayton 1, Ohio.

FRIGIDAIRE

Water Coolers

Air Conditioning

Refrigeration

BUILT AND BACKED BY GENERAL MOTORS

Evaluating Purchasing Efficiency

(*Continued from page* 282)

concerning sources, prices, and consumption of materials, equipment and supplies?

9. Do I participate in the work of my professional association?
10. Do I keep myself well acquainted with new developments through the reading of trade journals and other relevant literature?
11. Do I periodically review past transactions for (a) prices; (b) volume-price relationships; (c) fulfillment of delivery promises; (d) analysis of "emergency" requisitions; (e) reliability of suppliers?
12. Do I have an effective program for the identification and disposal of obsolete items?
13. Do I have sound inspection procedures?
14. Do I reduce paperwork by combining requisitions, using blanket orders, or other suitable means?

Administrative Aspects

1. Is there clear-cut delegation of authority and responsibility within the department?
2. Is the supervision effective?
3. Is the staff well trained?
4. Is the morale good?
5. Are the office methods and procedures designed to conserve clerical effort?
6. Is discipline good?
7. Does the work flow smoothly and on schedule?
8. Are the records well kept?

From the foregoing, it should be evident that it is not exactly easy to measure the efficiency of a purchasing office. It is a lot of hard work. But, conscientiously done, the results are well worth the effort, both in facts developed and in the improvement these facts can help us make.

Standards For Inventory Control

(*Continued from page* 94)

planned rate of production without receiving any more material into our inventory. It is our best judgment as to the amount of raw material that we need to carry, to protect our production schedules from interruption caused by late delivery of material under normal market conditions. It also makes provision for normal variations in the requirements of our customers.

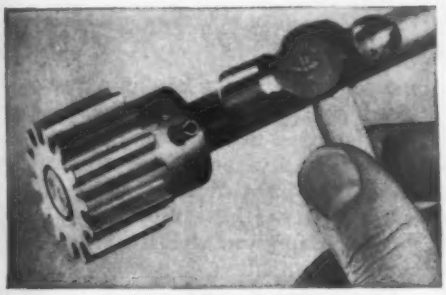
Our raw material control departments requisition and schedule materials for delivery in amounts which will keep our inventories within the limits of these standards. By working to these standards, we provide adequate amounts of material to sustain continued manufac-

(*Please turn to page* 288)

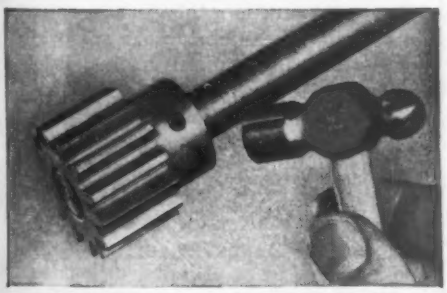
Where can you use this simple fastener?

Rollpin is driven into holes drilled to normal production-line tolerances.

No threading, peening or precision drilling with ROLLPIN



It compresses as driven.



Rollpin fits flush . . . is vibration-proof.

Rollpin is the slotted tubular steel pin with chamfered ends that is cutting production and maintenance costs in every class of industry.

This modern fastener drives easily into standard holes, compressing as driven. Its spring action locks it in place—regardless of impact loading, stress reversals or severe vibration. Rollpin is readily removable and can be re-used in the same hole.

* * *

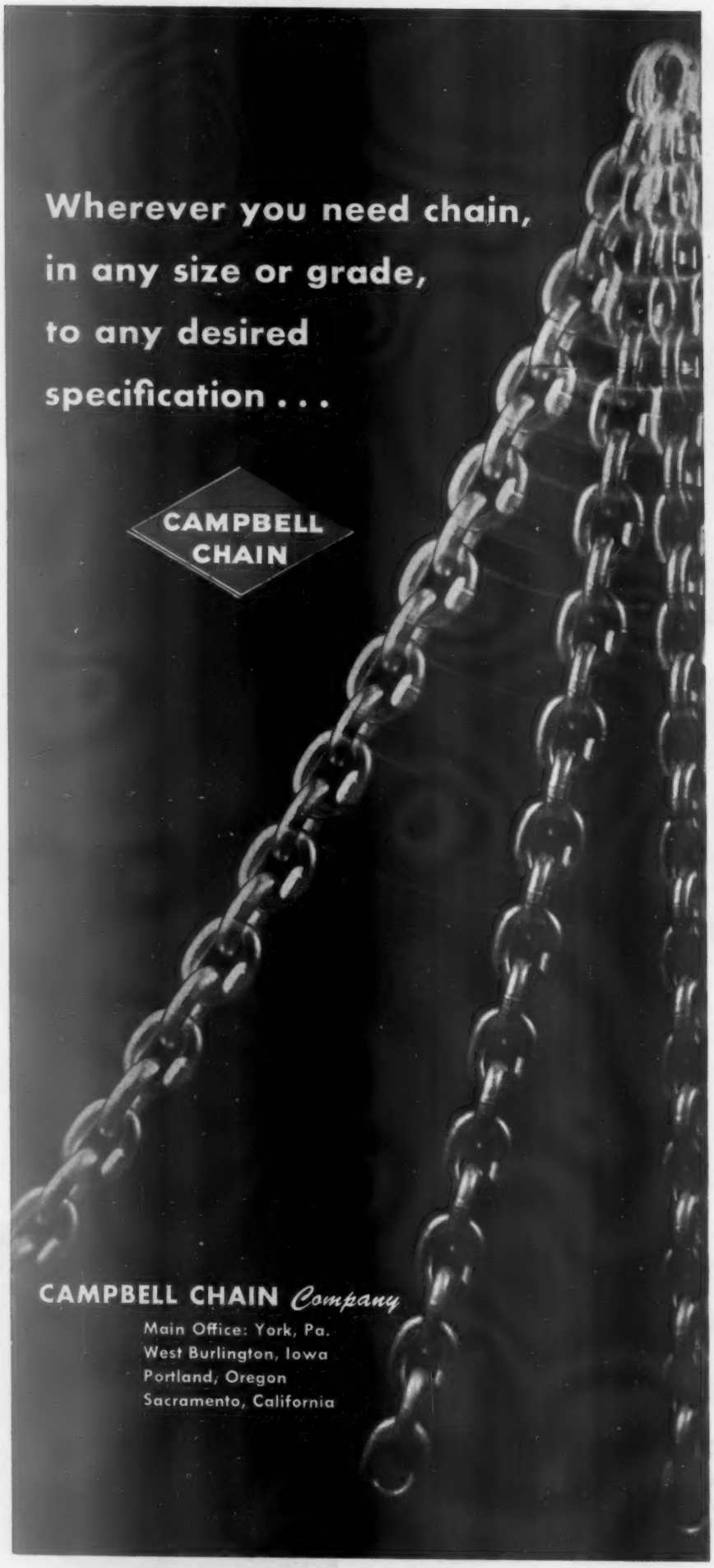
If you use locating dowels, hinge pins, rivets, set screws—or straight, knurled, tapered or cotter type pins—Rollpin can cut your costs. Mail our coupon for design information.

Elastic Stop Nut Corporation of America
Dept. R16-115 Vauxhall Road, Union, N. J.

Please send me the following free fastening information:

☐ Rollpin bulletin
☐ Elastic Stop Nut bulletin
☐ Here is a drawing of our product. What fastener would you suggest?

Name _____ Title _____
Firm _____
Street _____
City _____ Zone _____ State _____



Standards For Inventory Control

(*Continued from page* 284)

turing operations and meet our production schedules; we also control our investment of working capital in raw materials.

Our raw material standards are set in terms of days supply. These are very satisfactory terms to use when discussing inventories with production and other operating departments. However, division managers and staff management want to consider operations in terms of investment. Our standards are readily converted and expressed as dollar amounts.

So that we can conveniently compare actual performance with standard performance, each division prepares a monthly inventory performance report. This report records our actual inventories, and usage from inventory, as dollar amounts and also as days supply. These are set down in such a way that deviations from standard are recorded right in the original report.

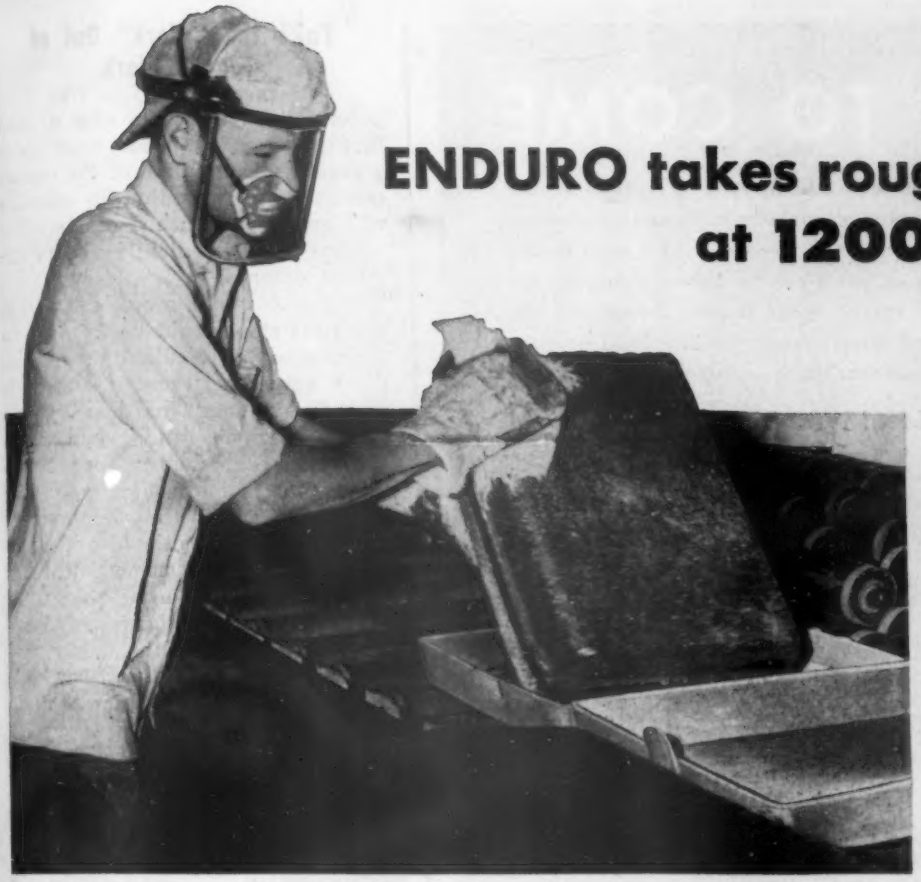
Our Director of Budgets prepares a consolidated report of these inventories, and sends it, together with the individual division reports, to interested members of our management staff. These reports keep us fully advised of our inventory position on an over-all company basis as well as on a division basis. We know what we have invested in inventories and how well we are using that investment.

Our inventory performance record is also placed on charts which are shown at our monthly management meetings. These charts are set up to show our investment in inventory and actual performance compared to standard. Excessive inventories are shown as red areas on the charts, and shortages are shown as green areas. It takes only a few minutes to show these charts and inform the management group of our inventory position.

We believe that our method of setting standards is sound, that our charts and reports clearly show our inventory position, and that the regular review of our performance against standards makes our control program an effective tool for management. This brief description of the program outlines a practical and workable approach to the inventory problem. The mechanics of the plan are not complex, and require no deviation from good practices.

Our objective is not to increase or decrease inventory investment, but rather to provide for a proper investment in inventory.

ENDURO takes rough handling at 1200° F



FOAMGLAS® *picture by courtesy of Pittsburgh Corning Corporation, Pittsburgh, Pa.*

● That's a stainless steel mold. It's filled with ground glass and carbon, then shoved into a furnace. It stays there 50 minutes, and the temperature peaks at 1700° F. While this is going on, there's an acidic condition at the surface of the metal.

It comes out of the furnace at 1200° F. The mold is stripped. And, here's where the real punishment comes in. Still at a high temperature, the stainless steel mold is hit by a blast of cold air or water. Then, it's coated with slurry.

These exposures to sudden drastic temperature changes—plus the acidic condition—eliminated many other materials for use as molds. Stainless steel does the job so well that these molds can be used 5,000 times before they have to be discarded.

Are you looking for a metal that can withstand high heat and corrosion? One that resists acids? One that can withstand high temperatures without appreciable scaling? ENDURO Stainless Steel may be the answer. Republic engineers will be glad to help you work it out. Write to:

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Bldg., New York 17, N. Y.

See and Hear "METALLURGY PLUS"

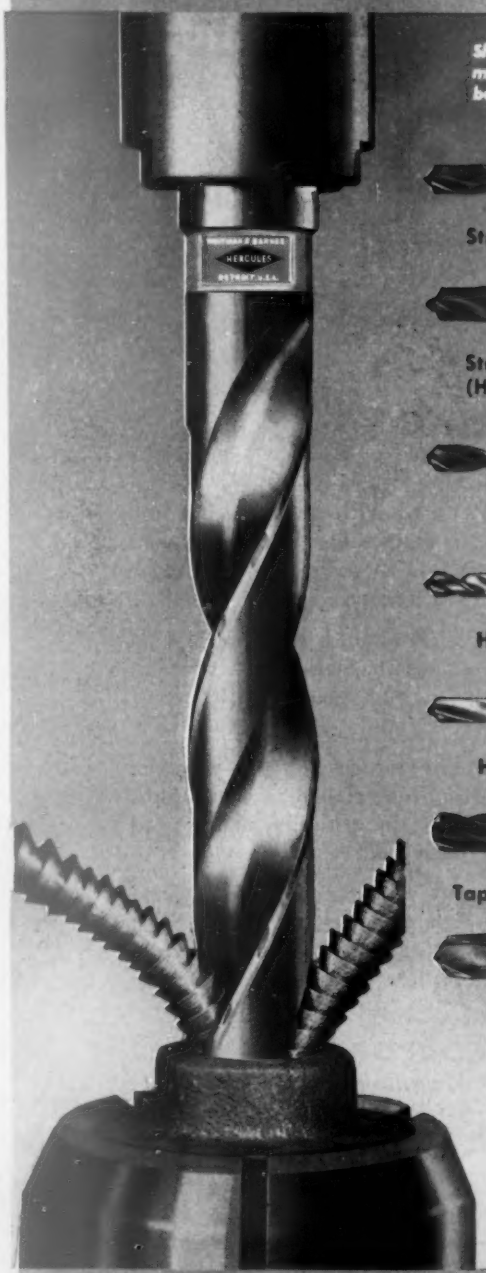
A 14-minute sight-seeing tour through Republic Steel mills making ENDURO Stainless Steel. Full color, 16 mm sound film. Available to qualified groups without charge. Requires 16 mm sound projector. Send name of organization and requested date to Republic Steel Corporation, 1470 Republic Bldg., Cleveland 1, Ohio, or your nearest Republic Steel Sales Office.

Republic
REPUBLIC STEEL
ENDURO STAINLESS STEEL

THINGS TO COME

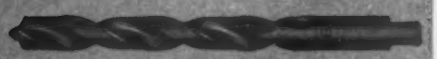
Future Whitman and Barnes ads will feature examples of cutting tools such as drills, reamers, carbide tools, etc., in actual usage in major industrial plants. Thus you will be able to see how others, by applying W&B quality of tool design and manufacture, have successfully solved their tooling problems, increased production, secured longer tool life, obtained greater accuracy of cutting and substantially reduced tooling costs.

Contact Your Local W&B Distributor



Shown below are but a few of the many quality high speed drills to be found in the complete W&B line

Hercules High Speed
Straight Shank Taper Length Drill



Hercules High Speed
Straight Shank Taper Length Drill
(Heavy Duty—Extra Length Flutes)

Hercules High Speed
Straight Shank Jobbers' Drill

Hercules Fastwist
High Speed Straight Shank Drill

Hercules Slowtwist
High Speed Straight Shank Drill

Hercules High Speed
Taper Shank Three Groove Core Drill

Hercules High Speed
Straight Shank Oil Hole Drill

W&B

Drills • Reamers • Counterbores
Countersinks • Carbide Tools
Tool Bits • Special Tools

Makers of fine Tools Since 1848

WHITMAN & BARNES

40015 Plymouth Road • Plymouth, Michigan

NEW YORK • CHICAGO • LOS ANGELES • HOUSTON • ATLANTA

Take the "Work" Out of Figure Work

(*Continued from page* 178)

potential buyer. It is also a sure fact that such a prospect must make a careful examination of the equipment to be positive that his selection will answer the needs of his office force most conveniently and to the fullest extent.

While it would seem logical that our next step would be to move to the category of calculating machines, there actually is one intermediate type of equipment that lies between adding machines and calculators—the printing calculator. Here is a machine that is more than an adder and yet not quite a calculator. It differs from conventional adders in that it contains special features which facilitate the mathematical processes of multiplication and division. While some of the adders previously covered can almost be classified as printing calculators, they do not quite reach that point because of the lack of a real "short cut" method for multiplying and dividing. However, unlike calculators, the printing calculator prints its answer on a paper tape and cannot easily handle, for the most part, some of the complex problems that calculators do with ease.

There are three printing calculators on the market—Remington Rand Inc., Underwood Corp. and the Olivetti Corp. of America, New York City. All machines are 10-key and fully electrified.

The Olivetti Printing Calculator made in Italy, is fully automatic for addition, subtraction, multiplication and division. It also produces automatic credit balance. The special keys—"00" and "000"—have been added to insert ciphers easily. It prints sub-totals and totals in red.

The Remington Rand Printing Calculator features automatic division and multiplication by using a short cut key and multiplying by a complement. A newer model of the machine now features direct multiplication by the addition of a special row of digits for multiplication which eliminates continued "addition" and only prints the final answer.

The Underwood Sundstrand Printing Calculator also features direct division and automatic multiplication. Multiplication is handled by entering the multiplicand in the machine, moving a selection lever to the highest digit of the multiplier and depressing the multiply key. The machine prints the multiplicand, multiplier and the answer.

(*Please turn to page* 292)

Container cost cut from 7.42 to 3.40. When these parts for crankshaft dampers were slushed in grease, 20 were packed in a $1.35 wooden box. Now, packed *clean* with Angier VPI, 110 parts are shipped as shown here for only $3.40. Freight savings to customers is an obvious fact.

Vapor-from-paper stops rust...

cuts container cost 54%

The paper you see in the carton gives off a vapor that stops rust.

It's Angier VPI Wrap, and it eliminates slushing with grease! So Schwitzer-Cummins Co. now has a cleaner, *safer* place for packaging parts *faster*.

When received by the customer, the clean metal parts are as bright and shiny as when packed. There's no messy de-greasing to do now . . . an important sales advantage these days.

Because Angier VPI* Wrap is so easy to use, packaging time, says Schwitzer-Cummins, is cut 52%. What's more, container costs are down 54%, as the picture caption tells.

If it is *your* job to cut preservation costs, get the facts on Angier VPI Wrap now. It is cutting costs today in every branch of metalworking including ordnance . . .

— for in-process and warehouse storage
— for domestic and export shipments

To get FREE sample and facts about VPI Wrap — or any of Angier's products listed below — write, Angier Corporation, Framingham 17, Mass.

* ®Vapor rust preventive. Angier VPI Wrap (2 gram) is made to conform to the government's specification on volatile rust inhibitors —MIL P 3420.

Does *your* management know about VPI?

Angier

Also: Induwrap®—original and superior Grade A. **Snake Tape**—reinforced gummed tape for faster, stronger sealing. **Glass-wrap**—new, amazingly strong waterproof paper. **Coilwrap**—for the metalworking industry. AND other protective papers for industrial, building and farm needs since 1895. Distributors in Principal Cities.

eye it →

try it →

buy it →

BALL PEIN HAMMERS

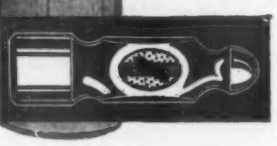
by BILLINGS

THEY CAN TAKE IT! It's the opinion of men doing those tough jobs—punishing jobs where a hammer must take a steady hourly beating day in and day out.

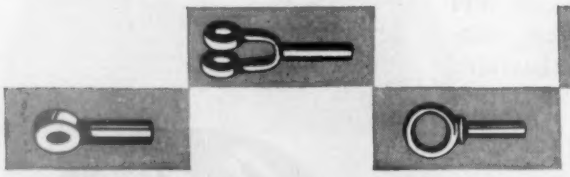
Here are some of the reasons why . . . (1) Heads are Vitalloy® Forged of selected alloy steel, (2) Held within controlled specified hardness limits, (3) Heat treated to develop the utmost in physical properties, (4) Every head Magnaflux(*) inspected, (5) Distinctive convex shape of Eye, (6) Securely driven wedges interlocked for safety, (7) Billings guarantee of sound, perfect Heads, (8) Handles of selected, second growth hickory, waxed, (9) Two finishes, full polished (Model AD) and black with bright Face and Pein (Model BC).

SAFETY EYE CONSTRUCTION

INTERLOCKING WOOD AND METAL WEDGES



*One of the best methods of indicating cracks or flaws in the structure of steel.



Yes, Billings Hammers *can* take it! Buy 'em from Billings Industrial Distributors.

BILLINGS®

THE BILLINGS & SPENCER CO.
HARTFORD 1, CONN., U.S.A.

QUALITY TOOLS AND FORGINGS SINCE 1869

"Figure Work"

(*Continued from page* 290)

Generally speaking, complex payroll and invoice computations are the prime purpose of high speed calculators. However, it must also be remembered that in spite of their speed, the lack of a printed tape can conceivably place them at a disadvantage in some applications. Again, as with adders, it is extremely important for the potential purchaser to fully analyze his requirements to determine whether or not a calculator is the answer to his problem. While these machines, quite naturally, will add and subtract, their main purpose is to provide for rapid and accurate multiplication and division without using reciprocals or complements.

A little closer examination of what's available in the field will indicate some of the many applications these machines can be put to. Generally speaking, they are ideal for computation of time, weight, measure or foreign currency, and are extremely fast in the hands of a well-trained and experienced operator.

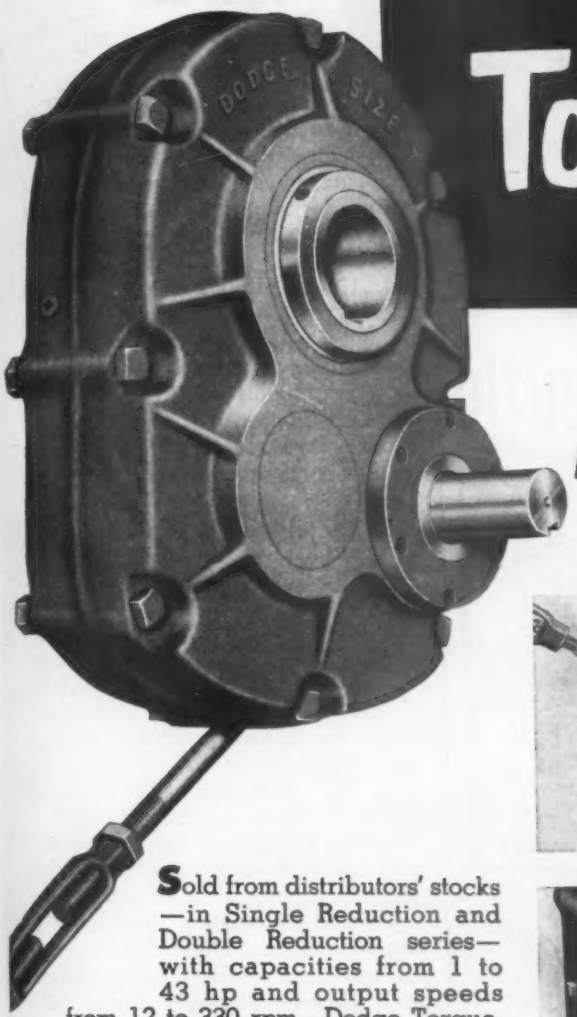
Burroughs Co. Burroughs offers hand or electric operation with listing capacities ranging from five columns to thirteen columns. The machines use two answer dials, one for net results and the other for individual results, to facilitate computations for payrolls, invoicing and sales analyses. They also feature a "full cent" key which automatically adds results over a half cent and drops figures below that point. Direct subtraction activated by one bar.

Facit, Inc., New York City, distributors of Swedish-made Facit calculators. 10-key, electrically operated machine featuring central clearing of all three of its registers simultaneously. Company stresses use of one hand only in setting factors and obtaining answers. Selective keys for activating any of the mathematical processes. Claimed as world's smallest fully automatic calculator.

Felt & Tarrant Mfg. Co., Chicago. Comptometers feature a two-color answer dial. That is, digits in the "cents" column differ in color from digits to the left of the decimal point. Ciphers have been eliminated from the columns to the left of answer so that only the digits comprising the answer are visible. Machine locks if a key is only partially depressed. Use of lightweight metals provides strong but light machine.

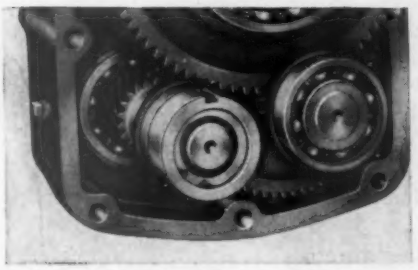
(*Please turn to page* 296)

Torque-Arm



The Most Complete Line of Shaft-Mounted Speed Reducers!

TRI-MATIC OVERLOAD RELEASE
Provides instant, positive protection for driven machines; motors and reducer itself. Automatically (1) loosens the belts, (2) cuts off power, (3) gives a warning.



TORQUE-ARM BACK STOP
Available from stock when required. Easily installed—sealed inside reducer housing. Simple, positive action prevents reversal.

Sold from distributors' stocks—in Single Reduction and Double Reduction series—with capacities from 1 to 43 hp and output speeds from 12 to 330 rpm—Dodge Torque-Arm is the new and modern idea in speed reducers.

No special engineering required. No foundation to provide. No flexible couplings. No sliding base. No lining up difficulties. No expensive installation. Stock Taper-Lock sheaves prescribed for each job to provide desired speeds. Application to other machines is practical and easy.

Unit is driven through any V-Belt Drive. Torque-Arm, fastened to any fixed object, anchors the reducer unit. Turnbuckle provides fast and accurate adjustment of belt tension.

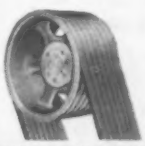
Standardize on Torque-Arm, the speed reducer that saves you money.

DODGE MANUFACTURING CORPORATION
1300 UNION STREET, MISHAWAKA, INDIANA

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory-trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone book.

ROLLING GRIP AND DIAMOND D CLUTCHES



TAPER-LOCK SHEAVES, SEALED LIFE V-BELTS

DODGE-TIMKEN PILLOW BLOCKS

TAPER-LOCK FLEXIBLE COUPLINGS

NAME PLATES — FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, CHICAGO THRIFT-ETCHING CORPORATION, 1555 N. SHEFFIELD AVENUE, CHICAGO 22, ILLINOIS

the **tougher** the cutting job . . .
the **better** the opportunity for . . .

Abrasive Cutting

"FOR YOUR INFORMATION . . . I DON'T KEEP MY MONEY IN MY PANTS ANYMORE!"

Today's applications for abrasive cutting are as *ingenious and practical* as the one shown above is ridiculous. It is used to cut all kinds of metals, from aluminum to uranium, as well as glass, ceramics, plastics, and building materials . . . and most important, it *cuts faster, cleaner, and cheaper.*

If you have a cutting problem, investigate the abrasive wheel method. Call Allison, *specialists in abrasive cutting for 30 years.*

Allison ABRASIVE CUTTING WHEELS

THE *best* WAY TO CUT MANY MATERIALS

THE *only* WAY TO CUT SOME

SEND FOR THIS HELPFUL BOOK ON ABRASIVE CUTTING

THE ALLISON COMPANY
259 Island Brook Ave., Bridgeport 8, Conn.

Please send me your free booklet on Abrasive Cutting:

NAME: _____

ADDRESS: _____

SALES3A

"Figure Work"

(*Continued from page 292*)

Friden Calculating Machine Co., Inc., San Leandro, Calif. Machines are electrically operated and feature separate multiplier keyboard except in semi-automatic models. Can multiply, multiply and add product to previous total, or multiply and subtract from previous total, through special keys. Automatically divides on activation after entering dividend and setting divisor. Has automatic selective half-cent adjustment. Friden also makes a fully automatic square root calculator. Extracts square roots in addition to standard calculations. Radicand is set on key board, depress square root key corresponding to position of decimal point in radicand and answer appears at answer dials.

Marchant Calculators, Inc., Oakland, Calif. Electric "Figurematic" machines using full-key keyboards. Feature "push-button" multiplication, one-hand keyboard control, and three-dial proof of entry. A new feature is automatic clearance and tabulation as the dividend is entered. Further steps in division accomplished, automatically, through use of one key after divisor is set.

Monroe Calculating Machine Co., Inc. Manual and electrically operated machines. Both semi-automatic and fully-automatic models. Machines do negative and accumulative multiplication. After any problem involving automatic multiplication, the Monroe carriage aligns where it is needed for subsequent operation. Machine automatically squares, when desired, on a single entry of figures.

Automatic 3-factor multiplication is accomplished without intermediate steps. Result in lower dials is transferred to multiplier dials, correctly decimalized for subsequent calculations, while lower dials are cleared.

While it has been necessary to be very brief in showing some of the features of the various equipment, there can be little doubt that someone, somewhere, makes the machine to do any job. Like as not, there would be a definite choice of several makes and models. But, complex as the problem may be in determining what machine to purchase, it again resolves down to the point of requiring a purchase according to what the machine is scheduled to do.

Get the right machine for the job and let the manufacturers help you do it—they'll be glad to.

New!

VARY-TALLY

Multiple-Unit Reset Counter

DESIGNED TO COUNT ANYTHING COUNTABLE

this new Vary-Tally can be supplied in any combination up to 6 banks high, 12 units wide, with the counting units arranged compactly on stands in tiers. Now check these special features of Veeder-Root design and construction:

- Easily Readable from any Angle . . . Bold Figures Always Centered in Window . . . No Glare . . . Figures not Covered by Fingers in Operation
- Easily Portable, yet Ruggedly Built for Long Wear
- Separate Counting Units Can be Rotated like Tires on a Car, to Distribute Wear Evenly
- All Parts Corrosion-Resistant
- Working Parts of Hardened Steel
- Operation Not Affected by Extreme Heat or Cold
- Individual Tag Above Each Counter-Window — Not Strip Tabs
- Veeder-Root Quality in Every Part

Now what's on *your* mind, that Vary-Tally can help you count? Write for news sheet and prices.

"The Name that Counts"

VEEDER-ROOT INC.

HARTFORD 2, CONNECTICUT

Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C. • Montreal 2, Canada • Dundee, Scotland • Offices and Agents in Principal Cities

Administration of Purchasing To Be Topic of AMA Seminar

"Administration of the Purchasing Function" will be the subject of one of the spring seminars to be held by the American Management Association. Nearly 2,000 executives are expected to take part in the AMA 18-week program.

Between February 10 and June 25 the association will sponsor almost 130 educational seminar groups dealing with 86 specific management problems. Most of the meetings will be held at the association's Management Center in its headquarters at 330 West 42nd St., New York City.

The purchasing seminar is scheduled for February 10-12 and March 17-19. It will be an orientation seminar designed for two types of participants: The experienced executive who wants a sound basic refresher and a picture of latest developments, and the less experienced executive who wants a solid foundation for future development. Leadership is provided by an authority on the subject, with the assistance of other operating executives. The approach is instructional, with lectures, visual presentations, and discussion.

These subjects will be covered in the purchasing seminar:

Basic functions of the purchasing department. Internal organization of purchasing. Advantages and disadvantages of centralization of purchasing in single-plant companies, companies with branch plants, companies with geographically separated and foreign plants. Place of the purchasing department in the organization. Relation of purchasing department to other departments, particularly production control. The sales forecast in terms of current and future purchasing. Purchasing budgets and policies. Current purchasing procedures. Tools of purchasing. Standards of purchasing performance. Purchasing contracts with vendors; clauses, commitments and performance. Current trends in the organization of the purchasing function.

Chicago Purchasing Department Starts Training Program

The City of Chicago's Department of Purchases, Contracts and Supplies has begun a service training program for its 213 employees. Its aim is to familiarize them with the department and its functions.

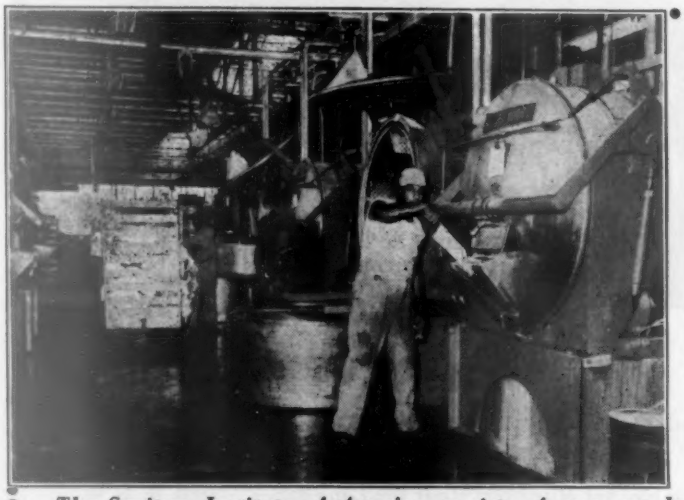
The agency, headed by City Purchasing Agent John F. Ward, since 1948 has handled approximately $50 million annually in purchases and contracts.

Mr. Ward has scheduled 11 meetings to be held in City Hall on the first and third Thursday afternoons of each month. Instructors are: Mr. Ward; Richard B. Berry, deputy purchasing agent; Leslie V. Beck, Mr. Ward's administrative assistant; Clinto F. Joy, specification engineer; Joseph Regan, chief storekeeper; Richard Sumnarski, head of the accounting department and J. R. Steele, market research analyst.

Booklet On How To Stop Rust

A new catalog of Rust-Oleum Corporation, 2799 Oakton St., Chicago, Ill. offers vital information on the prevention of rust in industry.

It features 94 color chips of Rust-Oleum products. Complete instructions are given for surface preparation and application of primers, short oil type, long oil type, machinery and implement finishes, chemical and heat resistant types, sealers, oil field finishes, thinning oils, and floor and masonry coatings. A question and answer section is included.



Section of Wash Room in typical S.I.A. Member plant. Note excellent lighting and scrupulous cleanliness.

for Efficiency and Economy use S. I. A. WIPING CLOTHS!

They are so far superior to ordinary wipers . . . there is no comparison. Check these important characteristics in S.I.A. Wiping Cloths, order a supply from your nearest Sanitary Institute member . . . and you'll use S.I.A. Wipers thereafter.

- √ S.I.A. Wipers are made of strong, firm cloth
- √ Thoroughly clean, free of any foreign matter
- √ Highly absorbent, and remain so for a long period of time
- √ Wide selection of sizes, for every need in your plant
- √ Sterilized, perfectly safe to use.

The Sanitary Institute of America consists of over one hundred members in twenty-seven of the United States. This advertisement is sponsored by the members listed below.

ATLANTA, GA.:
Rittenbaum Bros., 691-701 Houston St., N.E.

BIRMINGHAM, ALABAMA:
American Sanitary Wipers Co., 4292 1st Ave., S. (6)

BROOKLYN, N. Y.:
Delia Waste Products Corp., 1625 Dean St. (13)

CHICAGO, ILL.:
American Sanitary Rag Co., 336 W. 37th St. (9)
Chicago Sanitary Rag Co., 2137 S. Loomis St. (8)

DETROIT, MICH.:
Ace Wiping Cloth Co., 7355 Bryden Ave. (10)
Wolf Sanitary Wiping Cloth Co., 515 Wanda St. (20)

DULUTH, MINN.:
Northwestern Wiping Cloth Co., 438 S. Lake Ave. (2)

HOLYOKE, MASS.:
Charles Belsky & Sons, Inc., 532 Main St.

KANSAS CITY, MO.
Purity Textiles Co. of Kansas City, 4010 E. 31st St. (2)

NEW YORK, N. Y.:
Merel Wiping Material Co., 67 Greene St. (12)

PHILADELPHIA, PA.:
The J. Milton Hagy Waste Works, 4946-50 Parkside Ave. (31)
Keystone Wiper and Supply Co., 1308 No. 3rd St. (22)

PITTSBURGH, PA.:
Armstrong Sanitary Wipers Co., 1233 Spring Garden Ave., N.S. (12)
Scheinman-Neaman Co., 1024 Vickroy St. (19)

SPRINGFIELD, MASS.:
John R. Lyman Co., P. O. Box 623

TROY, N. Y.:
Troy Sanitary Wiping Cloth Co., P. O. Box 222

For prices and samples write any above member. For Institute specifications write any member or the Sanitary Institute of America, 105 W. Monroe Street, Chicago 3, Illinois.

THE SANITARY INSTITUTE of AMERICA

Ambruger Tusch Inc

Coldspot

Quick Prices... Quality Production
Prompt Delivery for Every Need!

Complete facilities to produce the finest plates of every type are at your service . . . including even a fully equipped shop to make the tools and dies required. Metal name-plates, signs, dials, gauges, data and instruction plates, panels, and metal components are promptly available. We handle any process, any metal, any colors . . . decorative bezels, escutcheons, and intricate formings. You are invited to take advantage of the skill of our designers without obligation. Send for free booklet showing Mayer's unsurpassed facilities for designing and producing quality plates economically. Write us today!

GEORGE J. MAYER CO., "Since 1884"
546 East Market Street • Indianapolis, Indiana
Sales Offices in Leading Industrial Centers

NAME PLATES by MAYER

Add fame to your name

olson

LINK-BELT ROLLER CHAIN DRIVE

White

Be Brighter than Competition!...

BETTER FINISHING is your cue! Finer, faster *burring, cleaning, finishing, polishing in one operation* with Brightboy saves time, increases profits. Brightboy produces parts, assemblies and finished products that look and *are* the *better* quality that brings *bigger* sales.

Brightboy definitely brightens your profit picture; gives you a refreshing concept of finishing—applications *beyond* the range of other methods. There are six textures. The combination-action of rubber and abrasive working together not only gives finer surfacing that enables you to out-sell competition, but also *time savings up to 50%.*

BETTER FINISHING DATA is no further away than your regular dealer. Ask him for the Brightboy Catalog Manual. Write us if he cannot supply you, or on any problem where finishing is involved.

BRIGHTBOY INDUSTRIAL DIVISION
WELDON ROBERTS RUBBER CO.
95 No. 13th Street
Newark 7, N. J.
America's Pioneer Manufacturer of Rubber-Bonded Abrasives

WELDON ROBERTS
Brightboy
RUBBER CUSHIONED ABRASIVES

FOR FINISHING ALL METALS, PLASTICS, WOOD AND LAMINATED MATERIALS

you pays your money... and takes your choice

After all, gummed tape is just gummed tape. Price is what counts. Buy it cheap enough and you might save (who's got a slide rule?) as much as .0000013 cents per unit.

Performance? Results? Who brought that up? Gentle reader, we just did. We've an idea — that if you once tried a top-quality gummed sealing tape — a tape designed for sealing *results* first, last and all the time... that you might agree price isn't so important after all. For the facts about Tru-Test, the gummed sealing tape sold on *results, not price,* check with your distributor or write us direct for his name.

TRU-TEST gummed **TAPE** T. M. Reg.

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LETTERS . . .

FRONT DOOR SELLING

About twenty years ago, we at the Hussmann Refrigerator Co. completely changed our procedure to provide an insurance against what is now termed "Back Door Selling".

Under this procedure, anyone who has anything to offer this company must come through the Purchasing Department. The members of the buying staff in the Purchasing Department have been schooled in qualifying and screening those who are offering either material or service, so that if the item happens to be one that has never been used by the company, or is of a technical nature, the supplier's representative is referred to a proper and qualified person in the Engineering Department, who simply qualifies the material or service as being suitable or not suitable for use in this company.

The Engineer does not buy, nor does he indicate to the supplier that he is OK'ing the product being offered, but rather that he is making a scientific evaluation of the material or service so that the Purchasing Department buyer may be in a position to judge from the standpoint of application or suitability.

I am sure that the sales representative soliciting an industrial firm many times finds himself confronted with a buyer who is not equipped to judge the suitability of an item, but who does take it upon himself to represent himself as being qualified. That's where the salesman or sales engineer gets it in his mind to try the "back door" approach.

After twenty years of experience with our method, we do not have the problem of "back door selling".

W. H. Grant, V.P./Mfg.
Hussmann Refrigerator Co.
St. Louis, Mo.

GOLDEN RULE

Some one has referred to me the survey "Should Hours for Interviewing Salesmen be Limited?" from your September issue.

During recent years I have noticed an increasing number of companies posting restricted hours to interview salesmen. I have often wondered how the management of these companies react when their own salesmen are faced with this problem. For this reason, I was rather surprised that only one reply out of twelve quoted referred to this aspect of the problem, by saying:

"We treat visiting salesmen in the manner in which we would like to have our salesmen received. Accordingly, we will interview a salesman any time he calls."

I certainly sympathize with the Purchasing Agent and the fact that he must receive all salesmen with patience and courtesy. At the same time, I don't see how an increasing number of concerns can continue to restrict the work of salesmen in a competitive system that is becoming more competitive.

A. G. Ballard, Vice-President
Diamond State Fibre Co.
of Canada
Toronto, Ont., Canada

● The section of the survey report devoted to comment, in which the above quoted statement appeared, is intended only to present a representative cross section of opinions expressed, without regard to the proportionate extent to which these opinions may be held. Actually, this identical point was repeatedly made, by a substantial number of the more than 450 purchasing men participating in the study. Prevalence of the sentiment and practice is more clearly shown in the tabulated replies to Questions 3 and 5 of the survey, indicating that 60% of buyers feel that restricted calling hours are unfair to salesmen, and 77% have set up no such restriction in their own buying practice.—Ed.

STANDARD TEXTS

I would like to know the titles of the best books published in the U.S.A. on purchasing. Our organization is a subscriber to your magazine and we publish every three months abstracts of the best books and articles published in the field of scientific management, in our magazine "Hommes et Techniques". Several abstracts from your magazine have already been published.

G. Henneton, Information Dept.
Commission Generale d'Organisation Scientifique
Paris, France

● The two textbooks most widely accepted are:

"Industrial Procurement" by Howard T. Lewis, published by Richard D. Irwin, Inc.

"Purchasing—Principles and Application" by Stuart F. Heinritz, published by Prentice-Hall, Inc.

INVENTORY CONTROL

I would like to obtain a copy of the April 1951 edition of PURCHASING, containing B. D. Henderson's article "Proved Policies of Inventory Control". An appropriate purchase order will be forwarded if required.

This past spring, Mr. A. M. Kennedy, Jr., Assistant General Manager of Purchasing for Westinghouse, described Westinghouse inventory control procedures to purchasing officers of the Bureau of Supplies and Accounts. In June, the Wilson inventory control plan was described to the Supply Demand Control Point conferees. During a visit to Washington this past week I was informed that your publication is one of the primary sources of information on the subject of inventory control.

As System Procedures Branch Supervisor of the Yards and Docks Supply Office, one of the several Navy Supply Demand Control Points, I am particularly interested in this subject. Any additional source information which you might suggest would be appreciated.

Earl Van Slyke
Yards & Docks Supply Office
U. S. Naval Construction
Battalion Center
Port Hueneme, Cal.

● Tear sheets of the 1951 article and others on the subject of inventory control sent. The book "Management of Industrial Inventory" by Benjamin Melnitsky (Conover-Mast Book Division, $5.50 per copy) is highly regarded as a comprehensive and authoritative summary of successful policies and methods in this field.—Ed.

APOLOGETIC BIDDER

The other day I was looking over an old file that had to do with our defense purchasing activity, and ran across a letter submitted by a Japanese firm that wanted to withdraw their bid on a purchase. I thought you would get a kick out of the closing sentence:

"This is a very rare, miserable case second to none and not repeated any more."

Apparently they are trying to say that they had made a mistake in the bid, and would promise never to make the mistake again.

Clifton E. Mack, Commissioner
Federal Supply Service
Washington, D. C.

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Ar. Chicago	5:05	5:00	6:05*
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Denver	11:50	11:45	
Los Angeles		3:45	
Ar. Oakland	4:50		
San Francisco	5:40		6:45

EASTBOUND

Lv. San Francisco	8:00		10:40
Oakland	8:50		
Los Angeles		8:55	
Denver	3:20	4:30	5:30
Ar. Chicago	8:45*	9:55*	10:55
Lv. Chicago	10:30†	11:30†	12:55
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Kaiser Sees Western Steel Consumption Over '51 Record

A 5% rise in steel consumption over the 1951 record is seen for seven western states in the year just ended. Kaiser Steel Corporation, in its annual steel consumer survey, estimates the market for steel mill products in the area will total 6,300,000 tons in 1953, against 5,981,000 in 1951.

The survey, entitled "A Report to Far Western Steel Purchasers," says about 58% of this steel comes from western mills. The rest is shipped in from mills outside the seven western states.

265-Page Basic Materials Book

Subjects ranging from discussions of new materials, such as radioactive materials and titanium and zirconium, to new applications of staples, such as steel and wood, are covered in the 265-page book, "Materials for Product Development—1953", published by Clapp & Poliak, Inc., New York 17, N. Y., producers of recent Basic Materials Conference.

Eighteen papers, illustrated by 36 tables and 30 graphs, make up the text of the book. Topics covered include; Engineering Materials in Today's Business, Materials and the Future, Materials for High Temperature Use, Molded and Extruded Plastics, and many others. Copies of the book can be obtained from Clapp & Poliak, Inc., for $7.50 per copy.

Top Purchasing Men Named By Hoover to Task Force

Several leading purchasing men have been named by former President Herbert Hoover to a task force to study use and disposal of $25 billion worth of surplus property.

Committee members who are widely known for their contributions to the purchasing field are: Harry Erlicher, Special Assistant Secretary to the Army; Russell Forbes, Deputy Administrator of the General Services Administration, who will be chief consultant; Carl A. Ilgenfritz, Vice President-Purchases, United States Steel Corporation; Thomas D. Jolly, Vice President, Purchasing and Engineering, Aluminum Company of America; George A. Renard, Executive Secretary-Treasurer, National Association of Purchasing Agents.

Mr. Hoover is chairman of the Commission on Reorganization of the Executive Branch of the Government. He said the task force would make recommendations dealing not only with current surplus problems, but also those of the future. He hopes the findings of the group will help save the government billions of dollars.

Precision Measurement Textbook

The history and techniques of gaging are the basis of a 264-page textbook, "The Science of Precision Measurement", published by the DoAll Company, Des Plaines, Ill. It discusses the constant and unchangeable wavelength of light and its use in the form of gage blocks. All phases of application and care of gage blocks are covered. Information on angle measurements, use of optical flats and interpretations of fringe lines, use of comparators, checking of micrometers and thread and gear measurements is also included. The price is $3.50 per copy.

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EXECUTIVE combines purchase, inventory management, and statistical experience in exceptional staff and operational background: currently employed, desires to relocate in New Jersey or vicinity New York City. Resume: Box 1403, Purchasing, 205 E. 42nd St., New York 17, N. Y.

Position Wanted

Aggressive, conscientious Purchasing Agent presently employed seeks better opportunity for advancement. Technical education, college man, well traveled, 7 years aviation experience, 5 years textile experience. Age 34, a good-natured southerner. Write Box 1404, Purchasing, 205 E. 42nd St., New York 17, N. Y.

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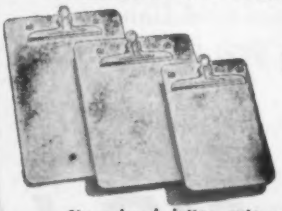

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